OUTLINE

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- Recommendation
The problem

- Micronutrient deficiency is prominent in Nigeria.
- Many local foods, fruits, and plants have been reported to be good sources of micronutrients.
- These are available in abundance and very low-priced.
- Moringa (also known as the miracle tree) is a very simple and readily available solution to the problem of malnutrition and improved health.
- It has a local resource, its supply is not seasonal (Fuglie, 2001); all its parts are edible and useful.
The Moringa leaf is a natural antihelmintic, antibiotic, detoxifier and an outstanding immune builder used in the treatment of malnutrition and malaria (Thilza et al., 2010).

Moringa leaves contain more nutrients than other well-known rich foods (Fahey, 2005).

Moringa seeds can also be processed into cooking oil.

Absolutely no negative effects to daily consumption of Moringa leaves and seeds have ever been reported (Marcu, 2005).

In Hawaii, the flowers are used to make a tea that cures colds. In addition to this, the flowers are a year-round source of nectar and can be used by beekeepers (El-Awady, 2003).
Objectives

- assess the level of awareness of moringa products and their nutritional and health benefits;

- Investigate attitudes of consumers towards labeling and certification; and

- identify the determinants willingness to pay for selected labelled and certified moringa products
Most existing literature studies on *Moringa oleifera* in Nigeria focused on phytochemical and physicochemical analyses.

The only known socio-economic study on *Moringa oleifera* in Nigeria was conducted by Torimiro *et al.*, (2009).
Methodology

- The data was collected in 2012 using a multi-stage sampling procedure.

- A total of 150 respondents were selected (83 from Abeokuta South and 67 from Abeokuta North).

- The contingent valuation method (CVM) was used to elicit information on consumers’ Willingness to Pay (WTP) for the three commonest products.

- The three moringa products (moringa tea, moringa spice/powder and moringa oil).
Descriptive statistics were used to:
- assess the level of awareness of moringa products and their nutritional and health benefits
- investigate perceptions and attitudes of consumers towards labeling and certification of the products.

The logit model was used to explain the log-likelihood of willingness to pay and its determinants.
- It has comparative mathematical simplicity and asymptotic characteristics, which constrained the predicted probabilities to a range of zero to one.
Logit Model

\[ \text{Logit} \left( P_i \right) = \log \left( \frac{P_i}{1 - P_i} \right) = \alpha + \beta X_i \]

Where:
- \( P_i \) = response probabilities of WTP;
- \( \alpha \) = intercept parameter;
- \( \beta \) = vector of slope parameters;
- and \( X_i \) = vector of explanatory variables.

Explicitly, explanatory variables are household demographic characteristics and composite indices such as:

- Knowledge of nutrition and health (KNOWNH),
- Awareness of moringa products (AWAREM),
- Current consumption patterns (PATTERN),
- attitude towards moringa products (ATTITMOR),
- attitude towards labelling (ATTITUDELAB),
- Perception of labelling and certification (PERCEPLAB), and
- Perception of moringa products index (PERCEPMOR)
The composite indices were derived by averaging the responses to each of the corresponding items (Moon and Balasubramanian, 2004; House *et al.*, 2004).

This yielded scores that could be any value between two limits.

For example the summated score for ATTITMOR could range between least positive attitude to and most positive attitude

HHISTORY captured people’s health condition as well as their concern for various nutritional diseases.
Socio-economic variables

- age of the respondents (AGE)
- sex of the respondents (SEX)
- marital status of the respondents (MARISTAT)
- education attainment of the respondents (EDUCAT)
- household size of the respondents (HHSIZE)
- unit price (PRICE)
- per capita monthly expenditure (HHMPCEXDIST)
Findings

Factors influencing purchasing decision

- Nutrition
- Safety
- Taste
- Price
- Convenience
Labelled and certified moringa products are safer than the unlabelled.

Read nutrition/certification labels when I buy moringa products.

- Yes: 75% (75%)
- No: 25% (25%)

- Yes: 86% (86%)
- No: 14% (14%)
Frequency of reading nutrition and safety labels when purchasing moringa products

- Never: 14%
- Sometimes: 31%
- Most times: 26%
- Always: 29%

Labels affect my purchase price decision

- No: 37%
- Yes: 63%
Contd

- Consume unlabelled moringa product
  - Yes: 33%
  - No: 67%

- Prefer labelled and certified moringa products
  - Yes: 72%
  - No: 28%
Contd.

- Prefer imported moringa products

- Yes 41%
- No 59%
Preferred Certifications/endorsements for Moringa products

- NAFDAC: 82%
- SON: 17%
- Others: 1%
Preferred packaging methods for the Moringa products

- Moringa Tea (%)(N=150)
- Moringa spice/powder (%)(N=150)
- Moringa oil (%)(N=150)
## Distribution of consumers based on their WTP for certified moringa products

<table>
<thead>
<tr>
<th>Moringa products</th>
<th>Response</th>
<th>Frequency (N=150)</th>
<th>Percentage (%)</th>
<th>Average premium (₦)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Moringa tea</td>
<td>No</td>
<td>75</td>
<td>50.0</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>75</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>2. Moringa spice/powder</td>
<td>No</td>
<td>77</td>
<td>51.3</td>
<td>64.8</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>73</td>
<td>48.7</td>
<td></td>
</tr>
<tr>
<td>3. Moringa oil</td>
<td>No</td>
<td>75</td>
<td>50.0</td>
<td>64.8</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>75</td>
<td>50.0</td>
<td></td>
</tr>
</tbody>
</table>
# Marginal effects after Logit on WTP

<table>
<thead>
<tr>
<th>Variables</th>
<th>Moringa Tea</th>
<th>Standard error</th>
<th>Moringa Spice</th>
<th>Standard error</th>
<th>Moringa Oil</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>-0.1788*</td>
<td>0.1019</td>
<td>-0.1297</td>
<td>0.0998</td>
<td>-0.0903</td>
<td>0.1006</td>
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<tr>
<td>MARISTAT</td>
<td>-0.3645**</td>
<td>0.1449</td>
<td>-0.1921</td>
<td>0.1685</td>
<td>-0.3155**</td>
<td>0.1517</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0150*</td>
<td>0.0086</td>
<td>0.0086</td>
<td>0.0079</td>
<td>0.0121</td>
<td>0.0083</td>
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<tr>
<td>EDUCAT</td>
<td>-0.0676</td>
<td>0.2025</td>
<td>-0.1925</td>
<td>0.1742</td>
<td>0.0415</td>
<td>0.1911</td>
</tr>
<tr>
<td>HHSIZE</td>
<td>0.0111</td>
<td>0.0405</td>
<td>-0.0138</td>
<td>0.0397</td>
<td>0.0148</td>
<td>0.0391</td>
</tr>
<tr>
<td>PRICE</td>
<td>-0.0667</td>
<td>0.0484</td>
<td>-0.0007</td>
<td>0.0452</td>
<td>-0.0469</td>
<td>0.0468</td>
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<tr>
<td>HHMPCEXDIST</td>
<td>0.0353</td>
<td>0.0551</td>
<td>0.1095**</td>
<td>0.0554</td>
<td>0.0313</td>
<td>0.0538</td>
</tr>
<tr>
<td>KNOWNH</td>
<td>0.3034</td>
<td>0.2384</td>
<td>0.3348</td>
<td>0.2343</td>
<td>0.0874</td>
<td>0.2291</td>
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<tr>
<td>AWAREM</td>
<td>-0.1790</td>
<td>0.1243</td>
<td>0.0159</td>
<td>0.1185</td>
<td>-0.1904</td>
<td>0.1213</td>
</tr>
<tr>
<td>HHISTORY</td>
<td>0.0017</td>
<td>0.1945</td>
<td>-0.0819</td>
<td>0.1850</td>
<td>0.1440</td>
<td>0.1844</td>
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<tr>
<td>PERCEPMOR</td>
<td>0.0149</td>
<td>0.1102</td>
<td>-0.0894</td>
<td>0.1064</td>
<td>-0.0587</td>
<td>0.1086</td>
</tr>
<tr>
<td>PATTERN</td>
<td>-0.2477***</td>
<td>0.1052</td>
<td>-0.1751*</td>
<td>0.0976</td>
<td>-0.2249**</td>
<td>0.0984</td>
</tr>
<tr>
<td>ATTITMOR</td>
<td>0.4063***</td>
<td>0.1102</td>
<td>0.2472**</td>
<td>0.0975</td>
<td>0.3951***</td>
<td>0.1079</td>
</tr>
<tr>
<td>PERCEPLAB</td>
<td>0.2298**</td>
<td>0.1122</td>
<td>0.1449</td>
<td>0.1115</td>
<td>0.2104*</td>
<td>0.1098</td>
</tr>
<tr>
<td>ATTITUDELAB</td>
<td>0.5386***</td>
<td>0.2772</td>
<td>0.5576**</td>
<td>0.2653</td>
<td>0.4619*</td>
<td>0.2669</td>
</tr>
</tbody>
</table>
Conclusion

- There is a prospect for moringa farmers in Nigeria.

- More males than females were more willing to pay for labelled and certified moringa tea.

- Attitude towards moringa products, perception of moringa product were positively related to WTP for labelled and certified moringa products.
Recommendations

- Intensification of awareness and sensitization programs on moringa products for female consumers.

- Re-orientation programs should also target the men folks and the singles.

- Marketers of these products should target the aging population, owing to their nutrition consciousness.

- Marketers should package moringa tea and spices in satchets; and moringa oil in kegs.
Thanks for Listening