Gari Revolution
Diffusion of Industrial Gari Processing in Nigeria

By


International Institute of Tropical Agriculture, IITA.

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Gari .......

- Gari: a creamy-white, granular flour with slightly fermented flavor and sour taste;

- Made from Cassava Roots;

- The most popular food item in Nigeria;
  72.5% of the 54 million cassava roots yearly produced by Nigeria, goes for gari production (40 million tonnes)
Gari Consumed in Different Forms

- Commonly consumed: Soaked in cold water with sugar, coconut, roasted groundnuts, dry fish; or

- Turned into Paste (Eba) with hot water and eaten with different vegetable sauces;

- Boiled without or with Cowpea as complement;

- Gaining ground in international markets with West and Central Africa viewed as the main producers and exporters;
Process Chart for Gari Production
12 Steps all fully mastered

**Sorting**
To select fresh, mature cassava roots with no rot

**Peeling**
To remove protective skins filled with harmful chemicals and trim woody tips

**Washing**
To remove pieces of peels, dirt and sands, etc.

**Grating**
To make a pulp from the roots

**Fermenting**
To let Chemical and Biological processes take place to reduce cyanogenic compounds and confer the pulp the distinctive flavor and taste

**Pressing**
To remove the excess water from the pulp

**Pulverizing**
(also Cake breaking) to loosen the pressed pulp into wet flour

**Cooling**
To keep the final product to ambient temperature

**Sifting**
To remove oversized granules and keep to pre-granule size of the gari

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**Grification**
Roasting the loosened sifted wet flour into gari

**Packaging/Storing**
To put the final product into appropriate sizes of sacks and carry final product to storage area or warehouse
Experience and Contribution of IITA to Gari Processing in Nigeria

- 48 years, of Activity in Post harvest Matters;
- Played key role in upgrading African traditional Post Harvest Technologies and gari production in particular;
- Introduced a lot of machines and processing lines;
- Teamed up with many organizations;
- The work did not stop at just designing machines and constructing prototypes but included the use of proven prototypes to establish entire processing enterprises.
The Road So far

- Improving Traditional Technologies Through IITA’s Own Efforts and With Supplements From Partners: PEELING
The Road So far

- Improving Traditional Technologies Through IITA’s Own Efforts and With Supplements From Partners: GRATING
The Road So far

- Improving Traditional Technologies Through IITA’s own efforts and with supplements from Partners: FERMENTATION
The Road So far

- Improving Traditional Technologies Through IITA’s own efforts and with supplements from Partners: PRESSING
The Road So far

- Improving Traditional Technologies Through IITA’s own efforts and with supplements from Partners institutions: SIFTING
The Road So far

- Improving Traditional Technologies Through IITA’s own efforts and with supplements from Partners: **FRYING**
# Mechanizing Increases Output

<table>
<thead>
<tr>
<th>P/N</th>
<th>Post Harvest Activity</th>
<th>Output using Manual Forces [Kg/hr.]</th>
<th>Output using Manually powered Machines [kg/hr.]</th>
<th>Output using Motorized machines [Kg/hr.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Peeling of Cassava</td>
<td>20 to 50</td>
<td>N/A</td>
<td>Up to 750 to 5000</td>
</tr>
<tr>
<td>2</td>
<td>Grating of Peeled roots</td>
<td>&gt;20</td>
<td>Up to 90</td>
<td>1,200 to 3000</td>
</tr>
<tr>
<td>3</td>
<td>Pressing of grated cassava</td>
<td>N/A</td>
<td>250</td>
<td>up to 3000</td>
</tr>
<tr>
<td>4</td>
<td>Pulverizing</td>
<td>30</td>
<td>N/A</td>
<td>Up to 2000</td>
</tr>
<tr>
<td>5</td>
<td>Sifting</td>
<td>60</td>
<td>300</td>
<td>up to 1000</td>
</tr>
<tr>
<td>6</td>
<td>Frying</td>
<td>N/A</td>
<td>60</td>
<td>From 100 to 200</td>
</tr>
<tr>
<td>7</td>
<td>Milling</td>
<td>N/A</td>
<td>N/A</td>
<td>From 200 to 1000</td>
</tr>
</tbody>
</table>
The Diffusion of These Technologies

- A lot has been achieved but all of it demand driven:

- For example, using 3 different approaches, under various programs including: CMD/CEDP; IITA/WASCO; AfDB_CBARDP, etc., IITA built and equipped over 1000 Cassava processing centers in 12 States, reaching over a 400,000 Families in Nigeria;

- New Cassava Food products a-part from Gari, Lafu, Fufu have been introduced;

- Fortification and Standardization of these earlier food items is going on;

- IITA introduced machines and cassava processing lines to over 20 African countries;
The 3 approaches

MPC 1

MPC 2

MPC 3

SME 1

SME 2

SME 1

SME 2

Mobile Processing Unit

Storage of gari produced in MPC

CRC 1
The Diffusion of These Technologies

- From 1556 to date, much has been achieved. All was demand driven.
- Post harvest - greater opportunity in the Value Chain;
- No need to lease land, wait for 60 days or 12 months to get your reward;
- No need to buy machines; You go to processors or wait at your doorstep the mobile service provider;
- Everybody gets a reward with the IITA specially designed Post harvest machines. They are flexible (stand alone, fixed or mobile); motorized or manual; They are sturdy, easy to operate and to maintain, can be pushed by hand or put on a bike too. In addition, IITA has developed efficient machines for fixed enterprises of small to high capacities.
IITA Set of Services to the Gari Industry

FOR FABRICATORS

- Machine Design support;
- Support for Improvement of their fabricated machines;
- Training in machine fabrication and maintenance;
IITA Set of Services to the Gari Industry

FOR OPERATORS/OWNERS OF GARI PROCESSING OUTFITS

- Feasibility Studies for establishment and operation of Gari Processing Centers;
- Design and Construction of new Gari processing enterprises;
- Integrated Studies for improvement of operations;
- Refurbishment of old Enterprises;
- Training in machines operation and maintenance for technicians.