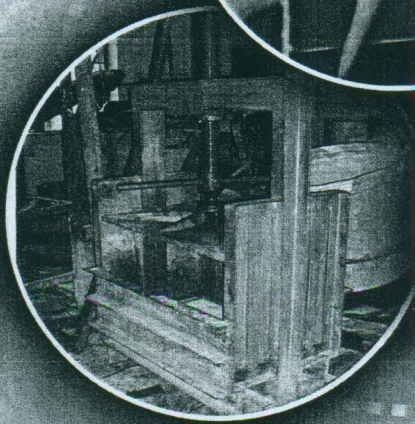
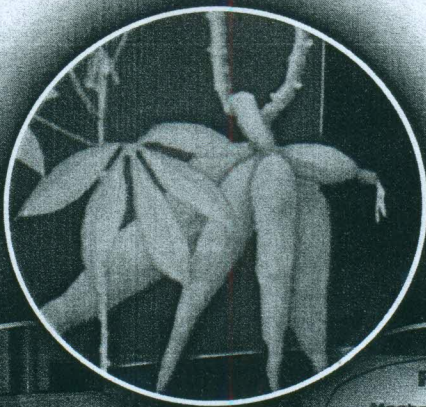


# CASSAVA

## Production, Processing and Utilization in Nigeria



**FIRO**



FEDERAL INSTITUTE OF INDUSTRIAL RESEARCH, OSHODI,  
(FIIRO)

ECONOMIC VIABILITY OF CASSAVA PROCESSING INTO GARI

*BY*

MRS. B.O. OYEDOYIN (MRS.)

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## ECONOMIC VIABILITY OF CASSAVA PROCESSING INTO GARI TONS/DAY

### GARI

#### Production Programme

The production schedule adopted is based on a number of criteria which include.

- The extent of the market for the finished product
- The capabilities of available production plants and their efficiency
- The skill and efficiency force
- The availability of raw materials. The proposed production

schedule of Gari is as follows:-

A.	Number of hours, shift working days	
	No. of hours per shift	8
	No. of shifts/day	2
	No. of working days/week	5
	No. of working days/year	250
B.	Quantity of Gari produced	
	Output of Gari per day	1 Ton
	No. of shifts per day	2
	Output of Gari per year	2 Ton
	Output of Gari per day	500 tonnes
C.	Input; output Ratio	5:1

#### PROPOSED PRODUCTION PROGRAMME

Maximum capacity utilization is proposed to be achieved at 80% for the first year and 90% in subsequent years. Two shifts are recommended from second years capacity utilization is lower to allow the factory workers gain experience on the job and also allow for the market penetration of the product. The total production at 100% capacity is 500 tonnes from in the second year of 2 shifts.



The proposed production programme can be summarized.

Year	1	2 - 5
Capacity utilization shift	80%	90%
Annual output (tones)	200	450

#### **RAW MATERIALS SUPPLIES UTILITIES REQUIREMENTS.**

Fresh cassava Tuber is the only raw material required for the production of gari 304447, 30001, 30211 and 50395 which are yielding (between 15 and 25 tonnes per hectare) are obtainable from IITA. These varieties also mature earlier than 12 months and are low in cyanide content.

The price per tonne of cassava tubers varies between N6,000 and 10,000 depend on the season. For the purpose of this economic viability, an average price per tonne of N8,000.00 (eight thousand naira assumed.)

The main supplies required mechanized for processing of cassava into Gari are; Polyethylene Bags (2kg); Cartons and gum; hand gloves; nose caps and overalls  
**Polyethylene Bags**

These are 2kg weight transparent bags with names of the product and other details printed on it for easy identification. These are available at poly products Nigeria Limited, Ilupeju, at a price of N6,000.00 (six thousand naira ) per 1000 pieces.

#### **Cartons:**

Strong cardboard cartons are recommended for the packaging of gari for supermarkets. This makes for easy handling and storage. A carton will contain 10 pieces of 2kg weight gari. Durable cartons are available at central packages Nigeria Limited, Nigeria carton packaging Manufacturing Company Ltd, Ilupeju and MKE Nigeria Ltd, Kollington Alagbado, Lagos. The price of carton is estimated at N50 each. The carton is required to be adequately Labelled. Labels are available at about N2 each from printing presses. Penal gum is recommended for sticking labels and sealing cartons. The indirect, supplies are hand gloves; overalls napkin and nose caps. They are all available at the open market at prices of N120.00; N1,200.00 ; N150; and N100 respectively.

The required utilities for the production process are water, electricity, diesel oil and petrol.

**Water:**

About 40 cubic metres of water is required for 8 hours production. About 20 cubic metres of potable water is required for the actual processing. The remaining 20 cubic metres would be required for wash-down of flours and equipments in the processing area.

**Electricity:**

A reliable and uninterrupted electricity supply is essential for the production process in the absence of this a 50 KVA generating (diesel) plant is recommended for use.

**Diesel Oil:**

Diesel oil is required for the gari fried, the dryer and electricity generating plant 400 litres diesel oil is required by the garifryer and dryer for 8 hour working day while electricity generating plant requires about 120 litres of diesel oil for the same period. Diesel is available at fueling station at N90 per litre.

**Petrol:**

Petrol is required for running the vehicle used for the procurement of raw materials and products distribution. Petrol is available at fueling station about 145, 920 litres of petrol is required annually.



**LIST AND ESTIMATED PROCESSING OF MACHINERY AND  
EQUIPMENT FOR (1TONNES/SHIFT OF 2 SHIFTS/DAY) (2 TONS/DAY)  
GARI PRODUCTION**

S/N	ITEM	ESTIMATED COST (N)
1.	Grating machine	130,000
2.	Hammer mill (stainless)	225, 000
3.	Hydraulic press steel	180,000
4.	Cake Granulator	170,000
5.	Shaker Screen	210,000
6.	Garifrier	480,000
7.	Dry mill (Hammer mill)	170,000
8.	Heat Sealer	25,000
9.	Bag Stitcher	30,000
10.	Weighing Machine	85,000
	- raw materials	
	- finished product	
11.	Accessories (Aluminum &	
	- plastic bowls	10 5,000
	- Peeling knife	15 5,000
		<hr/>
		1,715,000.00
		<hr/>

**FACTORY SPACE REQUIREMENT**

The flour area requirement is estimated at 280 square meters. The factor floor area may be divided into four main areas; the cassava arrival and preparation area, the fermentation area, main processing area and the product finishing area. office's), finished products and supplies stores.

**PERSONNEL REQUIREMENTS.**

Two main categories of personnel are identifies for the project. These are administrative personnel constitute the indirect labour force, while the factory staff constitute the direct labour force.

The administrative personnel required include;

- General Manager
- Accounting officer
- Purchasing officer
- Sales officer
- Security guards and Driver.

The factor personnel required include;

- Production supervisor
- Maintenance Technician
- Factory operatives and factory hands.

The no. of personnel required for the two shifts of 2 tonnes per 8-hour day is twenty (20). The General manager overseas and supervises the general running of the project and has the overall control over all labour. The accounting officer should have a minimum qualification of ordinary National Diploma (OND) records and keeps the company accounts and takes care of the financial affairs of the company such as staff salaries and monitoring of funds disbursement.

The purchasing officer who should have a minimum of ordinary National Diploma in purchasing and supplied with at least three years working experience. He is to

#### PERSONNEL REQUIREMENTS.

CATEGORY A: (ADMIN)	NO	QUALIFICATION	ANNUAL ENUMERATION (N)
General Manager	1	Bsc/HND	360,000
Accounting officer	1	SSCE	120,000
Purchasing officer	1	SSCE	120,000
Sales/invoice officer	1	SSCE	120,000
Driver	1	FSLC	120,00
Security Guards	2	FSLC	168,00

### CATEGORY B: FACTORY PERSONNEL

Production Supervisor	1	OND	240,000
Maintenance Technician	1	Trade Test	120,000
Operative	4	FSLC	336,000
Factory Hands	6		288,000
			<hr/>
			N1, 992,000

### ESTIMATED INITIAL FIXED COST FOR GARI

Items	Cost (N)
Land (2 Plots)	250.000
Factory Building	2000.000
Machinery & Equipment including installation and commissioning	1,886,500
Furniture and fittings	1,000,000
Generator (60 KVA) (fairly used)	650.000
Borehole, Water tank	300.000
Pipes, pump	
Utility vehicle (fairly used prick -up van)	1,200,000
<b>TOTAL</b>	<b>N7, 286,500.00</b>

Be in contact with distribution outlets for direct delivery and to establish necessary linkages, The production supervisor possesses at least OND/HND in food technology and should have at least three years working experience. He is directly responsible for the General Manager and the factory operative are responsible to him. The factory operatives who should have a minimum of city and gauds certification should be skilled enough to operate the processing machine.



## ECONOMIC VIABILITY

	(N)
(i) Initial Fixed Capital	7,286,500
(ii) Initial Working Capital	3,545,316
(iii) Pre-production Expenses	410,650
(iv) Pay-back Period	About 2 years
(v) Internal Rate of Return (IRR)	Above 40%
(vi) Break – even (Volume:)	

The Break – even volume for the first year of production of 1 shift per 8 – hour day i.e. 200,000kg of Gari per year is about 106, 376kg at 53.2% capacity utilization and 133 days of production.

(vii) Rate of Return on Investment (RRI)	is about 35.98%
(viii) Net Present Value @ 30% is about	25, 562, 660