

FRUTTA-SORGHO! – An Instantly Nutritious Blend of Indigenous Knowledge and Western Technology Co-Developed with Senegal Women Farmers

Team **PATH**

Promoting Agricultural
Transformation Holistically

Co-Op **GIE FEMME**

Women Economic
Interest Group



Indigenous Peoples

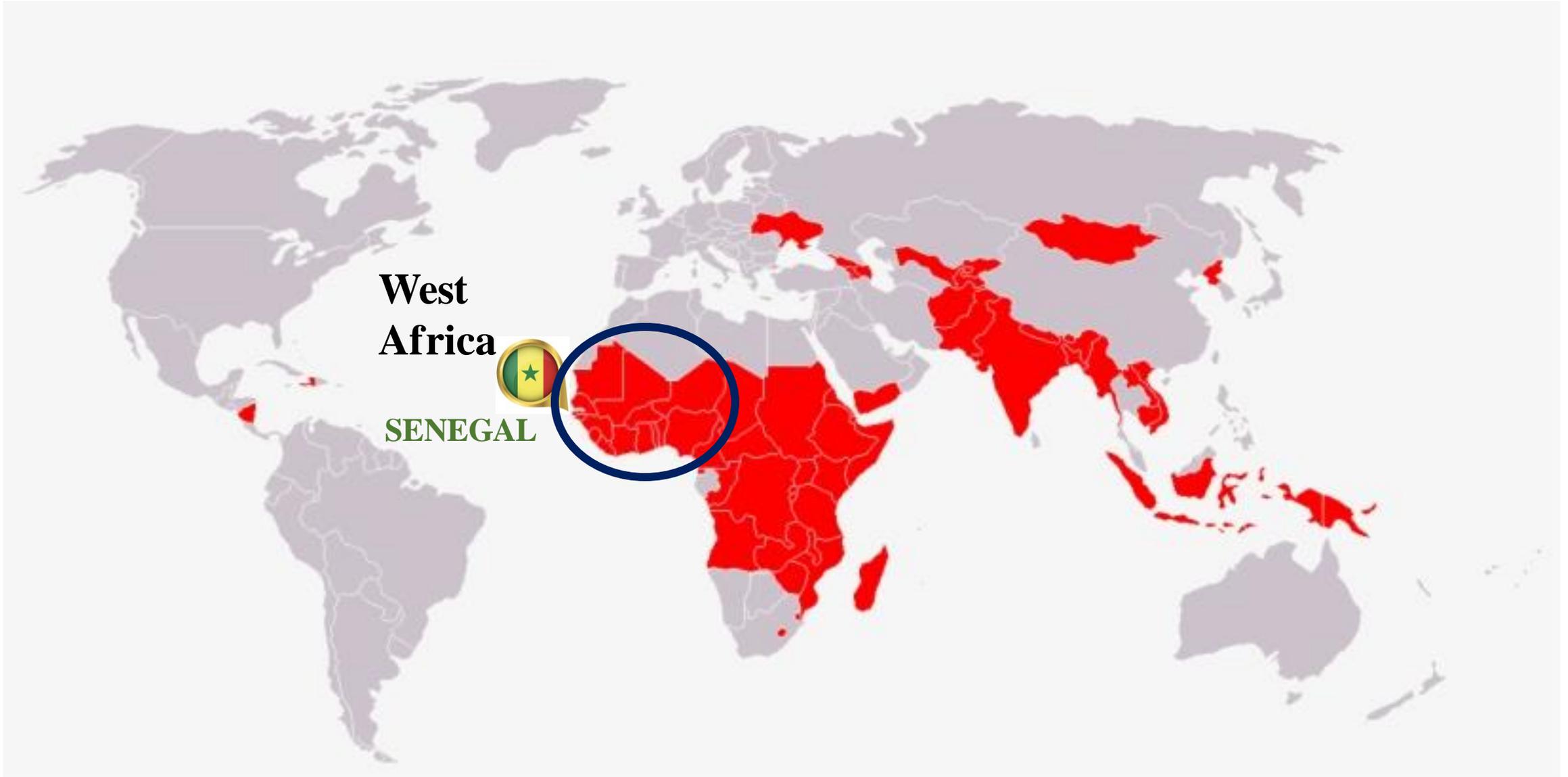


6%
of global population

19%
of extreme poor

Caring for **80%** of global
remaining biodiversity

33 Least Developed Countries





Our Partner - Ndangane Village



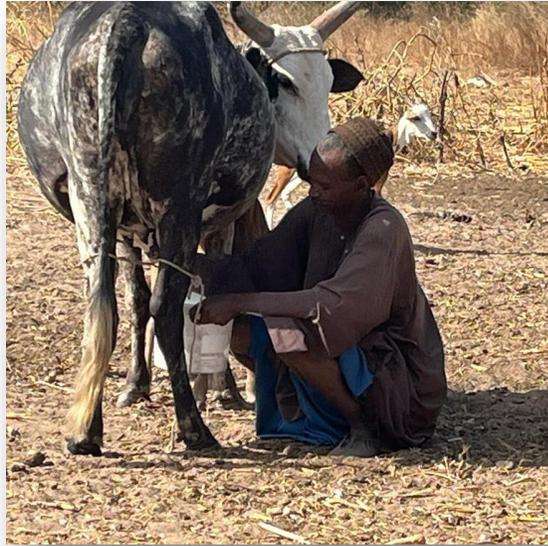
“We want to have work in the village so we can stay here.”



- Few and low paying jobs
- Child malnutrition
- Loss of crop diversity

Rationale – The Problem

Raw milk -
cannot store milk
for more than a
day



**Naturally fermented
yogurt** -
inconsistent quality,
spoilage, food
waste

Baobab -
not fully utilizing
the nutritional
potential



Sorghum -
important source of
iron, yet
underutilized

Solving Technical Challenges

Pasteurization -
extends shelf life
and ensures food
safety



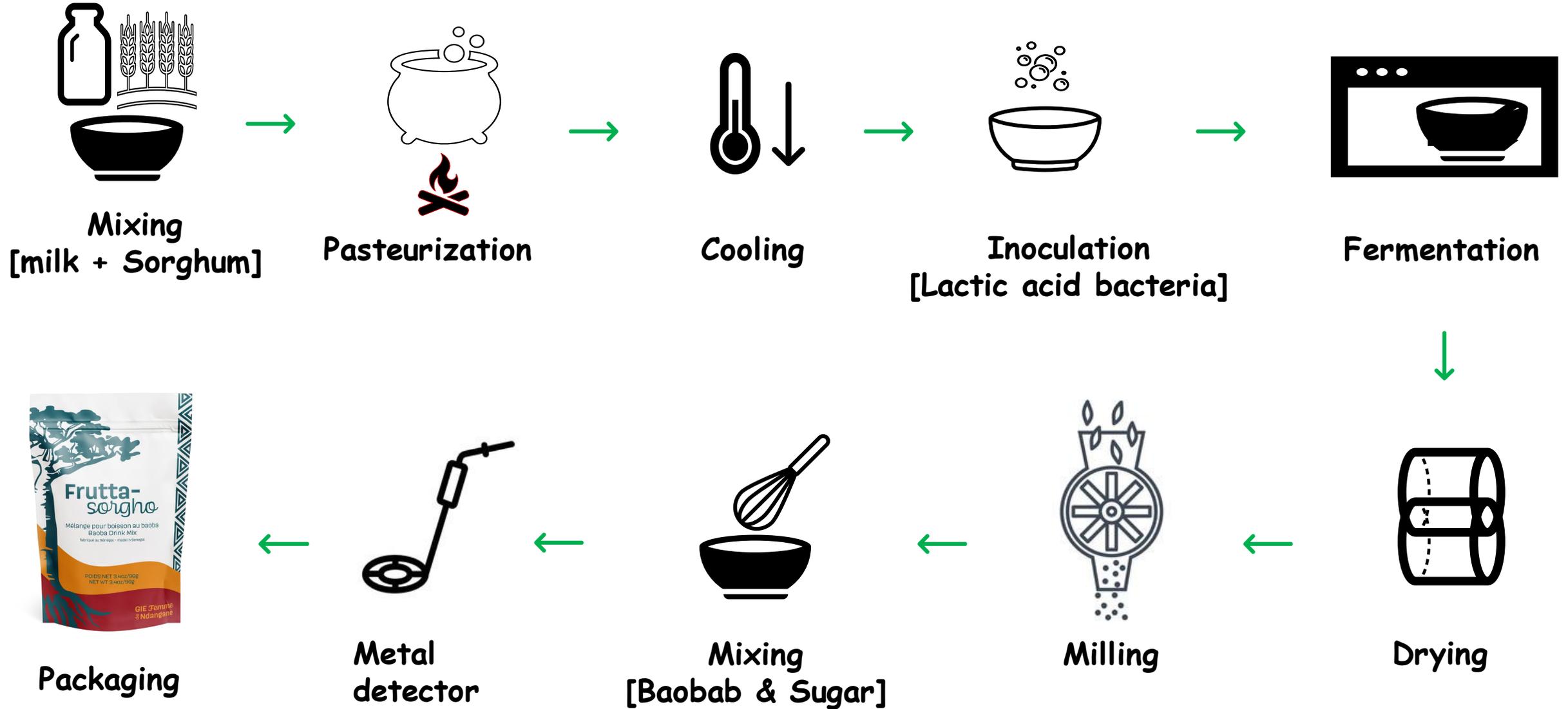
**Controlled
fermentation** -
Improves, safety
nutritional quality and
iron bio-availability

Baobab -
tangy, desirable
flavor,
Vitamin C



Sorghum -
increased use and
enhanced iron
bioavailability

Process Flow Diagram



Food Safety/HACCP and Shelf Life

Critical Control Points (CCP)



CCP1 Pasteurization
(90°C for \geq 30 secs)



CCP2 Fermentation
(40°C for 9 hrs, pH \leq 4.6)



CCP4 Metal detector
(ND)



CCP3 Water Activity
($a_w \leq 0.2$)

Packaging



- Waxed - slowing down oxygen, moisture, sunlight
- Biodegradable
- Locally available



Marketability and Competitiveness

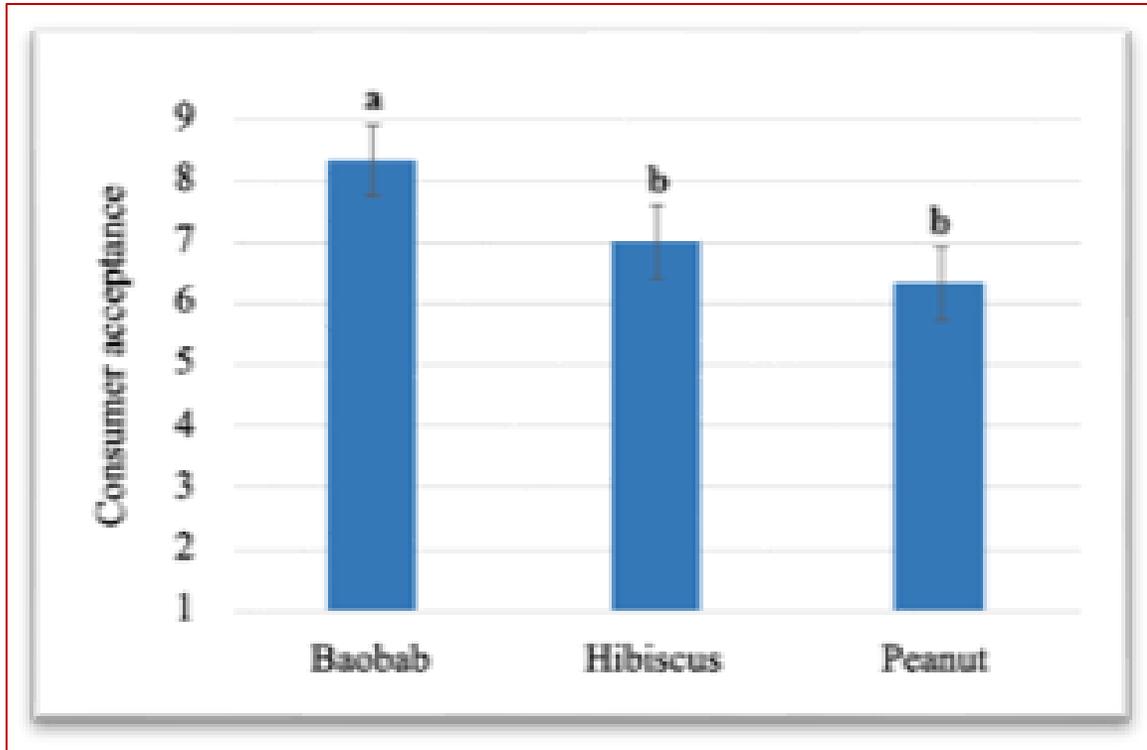


Savor the Flavor,
Anywhere!

Features	Frutta-Sorgho	Bouye et Lait
Shelf life	8-12 months at room temperature	2-5 days refrigerated
Nutrition	Fermentation-enhancing nutritional quality	Not fermented
Affordability	100% local ingredients	Imported milk powder
Availability	No cold chain distribution	Cold chain distribution
Accessibility	Instant	Needs refrigeration
Packaging	Waxed paper bags	Plastic bottles



Sensory Acceptance



❖ Baobab-yogurt mix preferred amongst women farmers!

Nutritional Benefits

Nutrition Facts

1 servings per container

Serving size (48g)

Amount Per Serving

Calories **200**

% Daily Value*

Total Fat 6g **8%**

Saturated Fat 3.3g **17%**

Trans Fat 0g

Cholesterol 20mg **7%**

Sodium 70mg **3%**

Total Carbohydrate 33g **12%**

Dietary Fiber 4g **14%**

Total Sugars 22g

Includes 12g Added Sugars **24%**

Protein 8g **16%**

Vitamin D 0.07mcg **0%**

Calcium 241mg **20%**

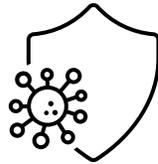
Iron 0.8mg **4%**

Potassium 420mg **8%**

Vitamin C **10%**

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

- 10% daily value of **vitamin C** (good source)
- 16% daily value of **protein** (good source)
- 20% daily value of **calcium** (excellent source)



Healthy immune system



Improved bone health and growth

Nutritional Benefits



Fermentation of milk and sorghum
using Lactic Acid Bacteria
+ vitamin C from baobab fruit
= increased iron bioavailability

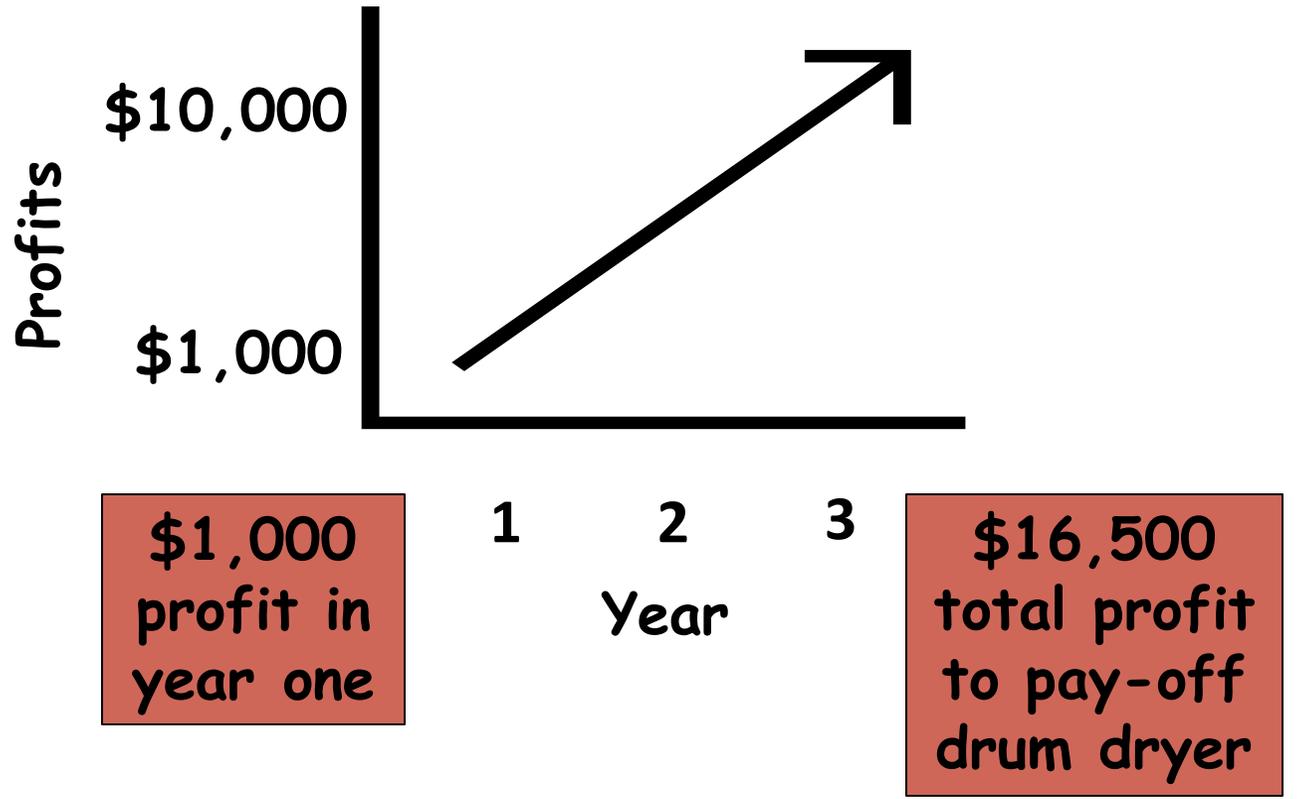
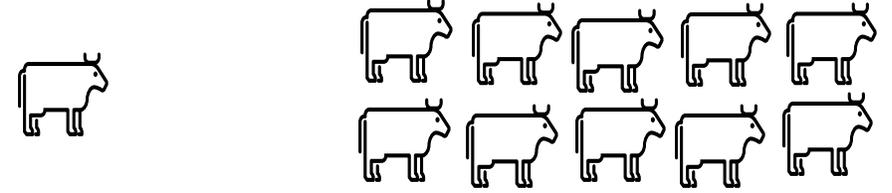


Economic Feasibility

Production Expense (14 packages)	Cost (USD)
Ingredients	6.60
Labor	3.30
Utilities	0.835
Total	\$10.75 per day

Per Package	USD
Cost	0.77
Selling Price	0.99
Profit	0.22

22% Profit Margin



Impact



In 3 years Frutta-Sorgho will...

- Employ 10 women daily
- Feed 300 school children daily
- Utilize 1300 kg of sorghum yearly



THANK YOU JEREJEF



We acknowledge and honor that we are on the ancestral territories of the Indigenous Nations and Peoples, including the Apsáalooke, Niimípuu, Šakówiŋ, Piikáni, Séliš, Shoshone-Bannock, and Tsétsêhéstâhese Nations.

We also recognize, with respect, the traditional homelands of our Senegal partners in, Ndangane, Keur Serign Djibel, and Ngouye Siwakh.