

Pelleted Organic Fertilizer Production from Organic Waste for Rice Farmers in Benue state, Nigeria

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Introduction

Rice production contribute significantly to food security as it is a major staple food in Africa.

Nigeria is the largest producer of rice in Africa with a production output of about 8,172,000 tonnes annually.

Benue State produces 1.5 Million metric tonnes of rice annually

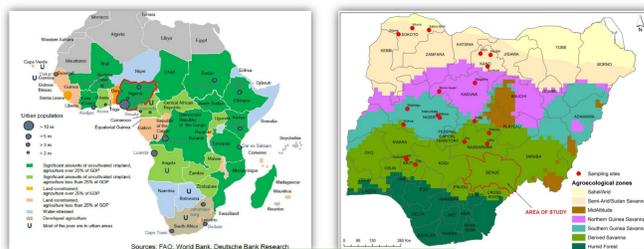


Fig1. Map of Africa and Nigeria

An important factor affecting rice production in Benue State is the gross insufficiency of quality fertilizer.



Solution Approach

- Mopping up organic wastes to keep environment clean
- Recycling organic wastes into good quality fertilizers (fig 9a)
- Making them available and affordable to rice farmers

Possible Risk

- Competition from producers of synthetic fertilizer
- Insufficient Funds
- Unfavourable government policies

Impact on Planetary Boundaries and SDGs



Problem Statement

- Relatively low productivity (fig 2a)
- Organic waste (fig2b)
- High cost of inorganic fertilizer



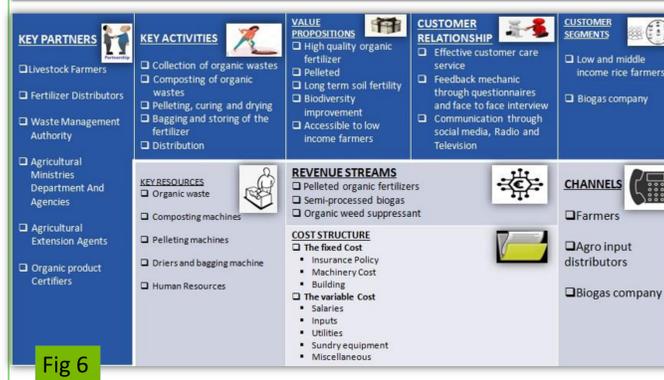
Objective

- Setup a company structure called Bloomhill agro (fig 9b)
- Procure the machines and equipment
- Procure organic wastes
- Recycle organic wastes into fertilizer and package them

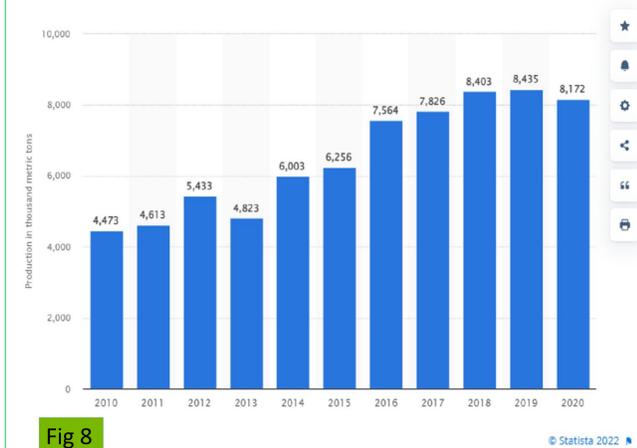
Processing Steps



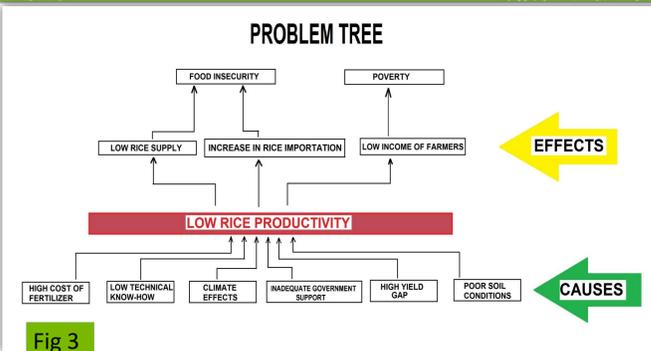
Business Model Canvas



Rice Production in Nigeria



Problem Analysis



Expected Cost

S/N	Fixed Cost	Cost in Naira(N)	Cost in Euro(€)	S/No	Variable Cost	Cost in Naira(N)	Cost in Euro (€)
1	Payment of Insurance Policy Cover	100,000.00	235.17	1	Annual Salaries of three (3) Staff (N50,000 monthly each)	1,080,000.00	2539.80
2	Machinery Cost				Annual Salary of CEO (N50,000 Monthly)	600,000.00	1411.00
a.	Bioneer	5,000,000.00	11,758.34	2	Purchase of Organic Waste (10 Tonne)	120,000.00	282.20
b.	Pelleting Machine	850,000.00	1998.91	3	Sundry Equipment	200,000.00	470.33
c.	Bagging Machine	1,100,000.00	2586.84	4	Cost of Utilities	300,000.00	705.50
d.	Bag sealing Machine	80,000.00	188.13	5	Additional Services (Business Cards, Adverts, Promotions)	200,000.00	470.33
e.	50kVA Generator	4,500,000.00	10,582.50	6	Logistics for collecting organic wastes	240,000.00	564.40
3	Factory/Building Setup	5,400,000.00	12,699.00	7	Cost of sack bag bundles (1,000 sacks)	20,000.00	47.03
	Cost Covered			8	Bag closing thread (1 bundle)	12,000.00	28.22
4	Business Registration	15,000.00	35.28	9	Maintenance	500,000.00	1175.83
5	Website Launch	100,000.00	235.17	10	Miscellaneous	250,000.00	587.92
	TOTAL	17,145,000.00	40,319.36				
	Fixed Cost	17,145,000.00	40,319.36				
	Variable Cost	3,522,000.00	8,282.58				
	TOTAL	20,667,000.00	48,601.93				

Expected Outcome

- Increase in rice production (fig 4a)
- Reduce reliance on rice importation (fig 4b)
- Reduced environmental pollution (fig 4c)
- Reduce reliance on chemical fertilizer (fig 4d)

