



**Galaxy Integrated
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Integrated Mobile Cassava Peel Processing Machine for Animal Feed

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Cassava Industry Overview in Nigeria & Africa

- ▶ Nigeria, the world's largest producer of **CASSAVA**, currently harvests over **54 Million Mt of Cassava annually**. Total cassava production for 2017 in Africa was about 177 Million Mt which is 57% of the world production.
- ▶ By 2050, African and Nigerian production could reach 350 Million Mt/yr and 150 Million Mt/yr, respectively, based on the observed 3 per cent growth rate in the last three decades.
- ▶ 80% of her rural poor depend on **Cassava/Cassava Products** as a main source of food/nourishment, income and employment.
- ▶ The world population could reach 9.5 billion people by 2050 with Africa reaching 2.4 Billion People and Nigeria having the highest increase amounting to 450 Million People.
- ▶ Exponential increase in population will result in a high and increasing demand for food and particularly for protein-rich food such as milk, meat, and fish.
- ▶ In 2017, around 10 Million Mt of Animal Feed was produced/consumed in Nigeria and this could reach 25 Million Mt by 2050.
- ▶ There is expected to be a strong competition between Humans and Animals for **MAIZE** and other **ENERGY RICH GRAINS** which are often the main constituent of Animal Feed.
- ▶ There is a strong need to explore other materials like the **CASSAVA PEEL** which can replace maize/other grains either partially or fully in the animal feed industry in order to preserve more maize for human consumption thereby preventing imminent hunger.

More than 95 per cent of Cassava uses require peeling which generates up to 14 Million Mt of waste annually in Nigeria and an estimated 53 Million Mt of waste in Africa.



The above waste generated annually, with Cassava Peels constituting around 7.5 Million Mt of the bulk within Nigeria, has an estimated worth of 369 Million USD (129.2 Billion Naira).

Unprocessed cassava peels is very rich in Energy(Starch/Carbohydrate) which is comparable to that of Maize/Other Grains.

Sample	DM	Ash	EE	CPDM	ME (MJ)/kg
Cassava peel pellets	90.77	8.44	0.58	3.98	9.41
Sorghum grains	88.24	4.74	1.60	11.36	9.28
Maize grains	90.65	1.18	1.64	11.34	9.71
Pigeon pea grains	90.86	7.09	1.92	13.17	6.95
Soybean cake	91.19	3.58	7.80	53.46	10.88

Table 1: Comparative nutritional value of cassava peel pellets to some common grains.

Note: DM = dry matter, EE = ether extract, CPDM = crude protein dry matter, ME = metabolizable energy, MJ = megajoules

Cassava Peels have a shelf life of 3 days, low Protein Content and local breeds contain high amounts of cyanogenic glycosides which can be toxic to both humans and animals.

The Solution: Integrated Mobile Cassava Peel Processing Machines.

Cassava tuber and Cassava peel have similar methods of processing which mean the use of similar equipment. However, while traditional methods involve the use of stationary bulky equipment, Our technology involves the use of portable/smart Mobile devices which are easily transferable from one farm/place to another.



The Integrated Mobile Cassava Peel Processing Machine developed by us processes fresh cassava peels, through particle size reduction, in three distinct stages that include: (1) Grinding (2) Dewatering (3) Drying. This drastically reduces cyanogenic glycosides with improved shelf life of up to six months.

Current and Expected Outcomes!

- ▶ This technology addresses Feed Scarcity, Food Security, Clean Environment and Improved Livelihood/Income for our farmers who are mostly women.
- ▶ Currently, in my region, this technology has boosted both Animal and Crop farmers profit/income by 40% and 15% respectively.



- ▶ These machines are easy to operate, gender friendly and suitable for a wide range of demographics. Parts replacement is cheap and can be sourced locally.
- ▶ Local production of Milk, Meat and Egg is expected to rise from 30% to 65% due to availability of cost-effective animal feed to farmers.

Scale-Up Plans!

- ▶ First, we are working on developing a single machine that will perform all three stages of the processing within the next six months. One that will be mobile, gender friendly and efficient.
- ▶ Around 3,000 USD will be adequate for further research, development, assessment and deployment of this technology/solution to farms within Southern Nigeria.
- ▶ An additional 3,000 USD will be required for full deployment of technology to other parts of Nigeria.
- ▶ Subsequently, each machine is required to cost 1,000 USD. Farmers can form cooperatives to raise money to buy this machine for shared use in their respective farms. Individuals can also buy this machine for commercial use in their communities.
- ▶ Within eighteen months from now, we hope to deploy our technology to nearby Sub-Saharan Cassava Producing countries beginning from Ghana and moving gradually to Cameroon, DR Congo, Mozambique, Tanzania, Uganda, and Madagascar.

Thank You!

