

Banana Peels as Feed and Organic Resource

From Waste to Resource

Banana and plantain peels offer a sustainable solution to waste disposal, serving as valuable resources for animal feed, soil input, and cooking ingredients. Proper processing detoxifies the peels, making them suitable for consumption by animals and contributing to waste reduction in regions where plantains and cooking bananas are common.



An industrial green banana peeler able to process 600 units per hour

IITA
Transforming African Agriculture

International Institute of Tropical Agriculture (IITA)
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Technology from

ProPAS

Commodities

Banana/Plantain

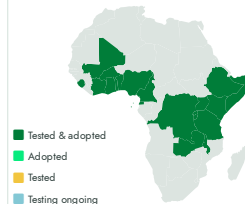
Sustainable Development Goals



Categories

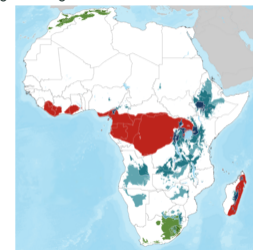
Pre-production, Equipment,
Agri-food processing

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Breeders

✓ This technology is **TAAT1 validated**.

7-8



Scaling readiness: idea maturity: 7/9; level of use: 8/9

Cost: \$\$\$ **3,500 USD**

A single belt 0.37 kWatt peeler

16,000 USD

Larger multi-channel 2.0 kWatt machines



Open source / open access

Problem

- Waste accumulation due to the disposal of banana and plantain peels.
- Concerns regarding the chemical composition and nutrient ratios of the peels, especially when used as animal feed.
- Difficulty in removing peels from green bananas and plantains, leading to inefficiencies in processing.
- Restrictions on using raw peels in poultry feed due to the presence of anti-nutritional compounds like tannins and oxalate.
- Challenges in effectively utilizing peels, such as feed refusal due to high tannin content and the need for proper processing techniques to detoxify peels.

Solution

- Banana and plantain peels are valuable components in livestock and poultry diets.
- Dried peels contain essential nutrients like potassium, phosphorus, iron, calcium, magnesium, and sodium.
- Utilizing peels reduces waste accumulation and promotes sustainable resource management.
- Treated and composted peels serve as beneficial organic inputs for soil improvement.
- Green peels provide an energy source in animal diets due to their carbohydrate content.
- Fresh peels with high moisture content help animals stay hydrated.
- In smaller quantities, peels find use in cooking, water purification, and manufacturing beauty and health products.

Key points to design your business plan

- Peels as Feed and Organic Resource technology reduces reliance on expensive commercial feed.
- It promotes sustainable practices by efficiently utilizing agricultural by-products like peels, reducing waste.
- Composting peels enhances soil health, boosts crop yields, and aids in carbon sequestration, contributing to climate resilience.
- Budget estimation involves considering costs of machinery (e.g., single belt peeler: \$3500, multi-channel machines: \$16,000), delivery expenses, and profitability from technology implementation.
- Collaboration with agricultural development institutions is essential to facilitate widespread adoption of the technology.

Gender assessment

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Climate impact

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