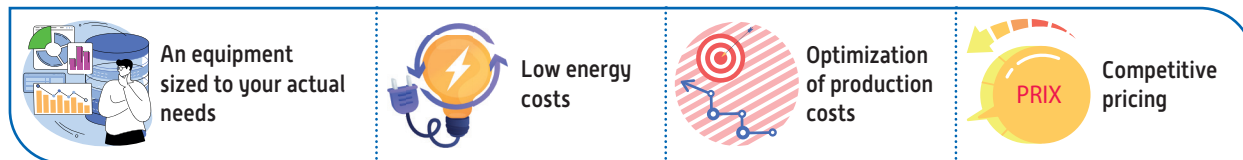




# Small-scale flash dryer

## FOR OPTIMAL CASSAVA PROCESSING



### Our approach

In order to provide profitable and efficient solutions in support of small production companies that process cassava and other roots and tubers (yams, sweet potatoes, canna, etc.), engineers from IITA, FIIRO, CIAT and CIRAD brought their skills together. Thanks to their process engineering skills, they succeeded in resizing the flash dryer system, to make it more profitable and energy-efficient for small-scale units producing starch and flour (100 to 500 kg/h). The team now supports equipment manufacturers and processing companies for the transfer of this know-how.

### Our strengths

- ▶ Expertise based on validated models and the support of several companies in the field (DRC, Nigeria, Ghana, etc.);
- ▶ Recognition of technical and scientific institutes in tropical and Mediterranean regions;
- ▶ Specific support for each project, taking into account both technical and financial aspects to achieve optimum return on investment.
- ▶ A low-capacity pilot flash dryer to test new products and optimize drying conditions.

In support of processing units and equipment manufacturers, our expertise allows you to:

**EVALUATE** the technical feasibility and profitability of the production line

**DEFINE** the key parameters and objectives for the design and specifications of small-scale flash dryers

**RECEIVE** remote technical advice during the construction of the equipment

**BENEFIT** from operation and maintenance training for small-scale flash dryers

**INCREASE** the quality and profitability of your starch/flour products

### Field-proven performance

- ✓ Significant energy savings
- ✓ Reduction in production costs
- ✓ Sharp rise in production capacity
- ✓ Increase in profitability



## NUTRIPRO - Increase in production capacity and energy efficiency of cassava flour processing - Fufu.

Nutripro is a small factory that processes fermented cassava flour (Fufu) in Kinshasa, D.R. Congo.

### ► The challenge.

- In DRC, Fufu is normally dried in drying yards, which can lead to contamination that reduces the quality of the flour.
- The small-scale flash dryers available on the market are demanding in terms of fuel consumption, have low productivity and a tendency to burn products.

### ► The idea.

- Scaling up flash drying innovations to small-scale fufu processors in DRC.
- Developing the usage capacity of flash drying innovations for cassava processing.

### The support

- Practical training workshops on the design and manufacturing of the flash dryer innovations, with the prototype flash dryer in Colombia.

- Remote technical assistance during the design, construction, installation and commissioning of the flash dryer.
- On-site efficiency tests of the two flash dryer versions built in 2019 and 2021, respectively.

### RESULTS

- In 2019, Nutripro invested in a flash dryer to replace the solar dryer. They achieved an increase in their productivity, from 10 to 15 tons of flour/month, and also improved their flour quality.
- In 2021, replacement of the old flash dryer, resulting in a notable increase of the capacity, from 75 to 245 kg/hour of dried flour was recorded, and a greater efficiency was achieved by halving fuel consumption.



## AGRIMAC - Empowering an equipment manufacturer as a flash drying innovations promoter

Agrimac is an equipment manufacturer for the food industry. In recent years, the company has specialized in the manufacturing of flash dryers in D.R. Congo.

### ► The challenge.

- Small-scale flash dryer designs available on the market are lacking fuel efficiency.

### ► The idea.

- Scaling up flash-drying innovations to small-scale flash dryer manufacturers.
- Developing design capacity, manufacturing and commissioning of flash drying innovations for cassava processing.



### The support

- Practical training workshops on the design and manufacturing of the flash dryer innovations, with the prototype flash dryer in Colombia.
- Remote technical assistance during the design, construction, installation and commissioning of the flash dryer.
- On-site efficiency tests of built flash dryers. Reports with technical recommendations for improvement.

### RESULTS

- Since 2019, Agrimac has designed and built 5 flash dryers following the recommendations of the RTB-CIRAD-CIAT team, 2 more are under construction. Additionally Agrimac has manufactured 4 heat exchangers and upgraded equipment for 2 cassava processing companies.