Solar Powered Mill
Production of fruit-powder from mango, banana and pineapple

What is a solar mill?
In agricultural processing, mills are used to break a product into smaller pieces to allow different types of usage. By milling, solid materials such as grains or dried fruits can be processed into flour or powders. Conventional mills operate with a diesel engine, that is inefficient, polluting and has high operational costs. Solar mills are powered by PV-panels and easy and cheap to operate, reliable, properly sized and environmentally friendly.

What are the main features?
The mill installed by WE4F is a hammer mill that crushes the product into smaller pieces by repeated blows of little hammers, until the wanted particle size is reached. The mill is driven by an electric motor (brushless, 48 V, 1.3 kW), powered by solar energy (2 kW). The system comprises a battery bank (800 Ah), that allows a continuous operation of the mill even under unfavourable weather conditions or during times after sunset. The mill can process up to 500 kg of product per day, and allows value addition to different types of product.

What are common uses?
WE4F's partner uses the mill to produce fruit powders from previously dried pineapple, banana and mango. The powder can be used to prepare drinks or for cooking. Other usage of the mill is the production of flour from cassava, maize or other grains.

Market Development
The market potential for solar milling in East Africa is high. However, manufacturers have to balance cost, throughput and efficiency to meet market needs. Reducing costs by increasing energy efficiency and consumer outreach and education can unlock higher demand. Used for processing of low value food crops (cassava, maize), solar milling does not have high value addition potential compared to other productive use appliances, making market fit and business case challenging. Only a few competitors are in the market, including a Kenyan and a European manufacturer.

Project overview
- **Partner:** Miyonga Fresh Greens
- **Type:** integrated Development Partnership with the Private Sector (iDPP)
- **Focus:** Piloting of climate-smart processing equipment
- **Duration:** 08.2020-07.2022
- **Country:** Kenya

**More information:**
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