



Food & Business Applied Research Fund



Development of automated solar powered fruit drying technology for smallholder farmers in Ghana

Consortium Members

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Main Innovation Aim/Objective

Aim: Catalyze small-scale processing of fruits which otherwise would have gone waste

Objective: Increasing smallholder farmers income and nutrition.

Expected Impact (including target group)

1: The application of the developed technologies regarding drying design and automation should lead to an increased capacity among practitioners and farmers on these technological innovations.

2: The increased amount of dried mangos on the market should result in an improved food security in the Kintampo area. In addition, children malnutrition should be reduced due to mango donations in the first phase and reduced prices for dried mangos in the second phase of the project.

3: Furthermore, the raised value of mangos and lower production costs due to automation should generate more income for 1000 direct beneficiaries and, indirectly, improve the livelihoods of 5000 dependents.

4: The project results should also be applicable in other areas of Ghana.

Specific Objectives

Objective 1: Increased knowledge on suitable sites for solar dryer development and installation

Objective 2: Increased knowledge and adoption of efficient solar oven technology for mango drying/processing

Objective 3: Enhanced mango drying & processing technology development and dissemination

Objective 4: Increased local and export market demand for solar dried and/or other processed mangoes



Researching best suited designs for technologies for remotely controlling processing parameters in the drying chamber.

- We are researching best suited designs for drying large volumes of fruits and developing technologies for remotely controlling processing parameters.
- We are undertaking a market intelligence study to try to find potential export market in the Netherlands and Europe.

Impact Activities and Results

We have developed a hybrid solar-LPG dryers using solar water heaters and LPG (as a back up arrangement) to heat water to give a continuous drying, even during night or non sunny days.

The air inside the chamber gets heated up to 70°C and the blower gives sufficient air velocity for drying.

The temperature and humidity inside the drying chamber is to be controlled by sensors and controllers now being developed.



Dryer being built by local artisans: a) Installing the dryer at the project site; b) Assembling the solar system; c) working on the inside



Harvested mangoes to be processed for first test run of the constructed dryer.



Sample of dried mangoes from the first test run

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