

Solar Food Dehydrator

Drying of fruits, vegetables and crops with the power of the sun

What is a solar dehydrator?

A solar dehydrator or dryer is a technology that enables the reduction of the moisture content of agricultural goods. This approach is a more advanced version of conventional drying in the direct and open sun. The structure keeps the product safe from dust, rain and insects, while achieving higher drying temperatures. This is a big advantage compared to the conventional practice of drying in the open air.

What are the main features?

Solar dryers are available in a variety of forms and sizes. The top of the dryer is made of a transparent material that allows the sunlight to go through. The inside surface is usually black, to absorb the incoming solar radiation and heat the drying chamber. Solar dryers have a controlled air system, that removes the hot and humid air from the inside of the chamber. When a product is placed into the dryer and exposed to the sun, it will heat up and reduce its moisture content. Depending on the product, the moisture content is reduced from about 90 % to 10 % wet basis. The dehydrator tested by WE4F consists of a black tray, covered by acrylic sheets. Each tray provides a drying area of 0.35 m², allowing the drying of around 2 kg of fresh product.

What are common uses?

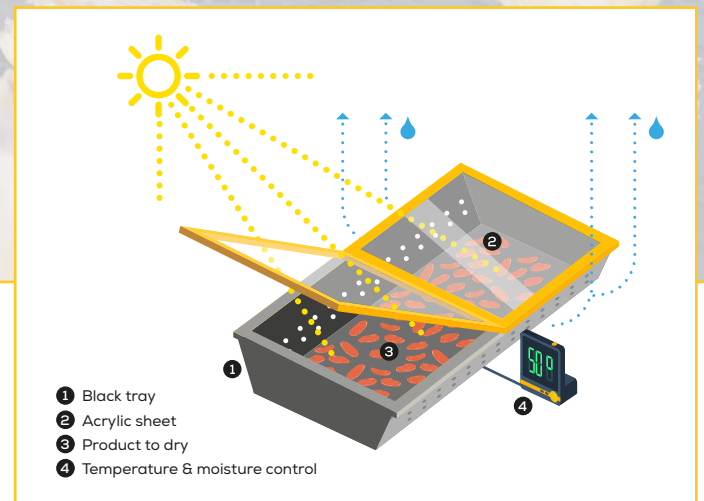
When drying an agricultural product such as fruits, vegetables or crops, the moisture content is reduced. This leads to a reduced growth of bacteria, yeast and moulds, allowing the preservation of food. Perishable products such as mangoes or pineapples can be transformed into dried fruits. Other common products to dry are cassava, chillies, tomatoes and a variety of herbs. Once dried, they can be preserved for several months.

Market Development

The market potential for solar dryers is high in regions with agricultural production and a high amount of sunny days. The technical basics are well assessed and different products in type and size are available in the market. This includes tunnel dryers, drying boxes, cabinet dryers or greenhouse dryers. Most of the dryers can be constructed with locally available materials.

Project overview

Partner: Farmer Group
Type: Agreement on usage, monitoring and evaluation of the system
Focus: Piloting of solar drying system
Duration: 03.2022-06.2023
Country: Kenya



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