



Double bench dryer



Dome shape dryer with chute vents

The lifespan for the improved solar dryers is up to 5 years with seasonal replacement of the polythene cover required every 6 months. However, the lifespan also depends on the handling and management of the dryer.

Advantages of the improved solar dryers;

- Enhanced efficiency leading to faster flower drying
- Minimal flower losses through scattering and interference by domestic animals
- Reduced flower fermentation hence

- maintaining flower quality
- Higher pyrethrin content retention thus better income for farmers
- Increased time availability for farmers to engage in additional activities
- Decreased physical exertion and reduced labor demand
- Suitable for rainy seasons by capturing and utilizing brief periods of sunshine.
- They are affordable as construction materials are locally available and ease of construction.



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SOLAR DRYING OF PYRETHRUM FLOWERS



Introduction

Proper pyrethrum drying is critical for preventing flower fermentation and the associated loss of pyrethrins. It also enhances the ease at which flowers are ground into fine powder at the factory. The required moisture content for dried flowers should be less than 10%. The optimum drying conditions for the harvested flowers are a temperature not exceeding 50 °C. Mistakes in pyrethrum drying lead to significant reductions in the Pyrethrin content, resulting in income loss for farmers. Drying can either be achieved through the use of solar dryers or mechanically-aided drying process.

Farmers practice

The typical practice among farmers involves drying flowers either on mats and gunny bags or directly on bare ground outside their homesteads. This often results in spillage, fermentation, and soiling, as well as losses during transportation and storage.



Flowers dried on gunny bags

Solar drying

Adoption of the solar dryer technology is recommended for use by smallholder farmers in Kenya. A solar drying unit consists of a wooden framework that holds trays for placement of pyrethrum flowers.



Solar drier

Improved solar dryers

Numerous improvements have been made to the solar dryers, and are available for adoption by smallholder pyrethrum farmers. The improvements offer enhanced efficiency in drying flowers. These dryers vary according to farmers' needs, including the quantity of flowers to be dried and affordability considerations. Consequently, they come in various sizes, internal structure designs, roof types, and roof materials, and may incorporate built-in solar collectors, as illustrated below.



Cabinet shelf solar dryer



Spiral shelf dryer



Tray shelf dryer