

# PARI Agricultural Innovation Database

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## About PARI

The Program of Accompanying Research for Agricultural Innovation (PARI) brings together partners from Africa, India and Germany to contribute to sustainable agricultural growth and food and nutrition security in Africa and India as part of the “One World, No Hunger” Initiative supported by the German government.

or directly via link:

<http://database.research4agrinnovation.org/>



## HOW TO USE

You can search the database by keywords or using different search criteria.

**PAR** Home Search

Search by keywords or use **advanced search**

**Keywords**

e.g. grafting, tomato, eggplant rootstock, sudden death, flooding, India

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**Solar Tunnel Dryer - Type Hohenheim** [Download as PDF](#)

**Overview**

The solar tunnel dryer type Hohenheim was developed for drying various agricultural products such as fruits, vegetables, spices and medicinal plants. The dryer is divided into two areas, the collector and the drying area. They mostly consist of an insulator sheet as bottom sandwiched between two metal sheets covered by a transparent UV-stabilized PE-plastic foil tilted or flat like a roof depending on the region. The arrangement of the collector area has two modes. The transparent plastic foil is clamped to the metal at both sides, whereas at the dryer part the foil is tied to a metal bar on one side which allows removing the foil for loading and unloading the dryer. Two fans are forcing air passing through the tunnel and are driven by a PV-module. The whole construction is installed on concrete blocks in order to facilitate the loading procedure raising the dryer level to about 20 or 30 cm above ground. To ensure continuous operation of the dryer, it is used a biomass furnace. The length of the solar tunnel dryer is variable as the design is modular, to allow flexibility of loading capacity. The dryer can be used for different products without requiring reconstruction. The system unites simple construction, use of renewable energy and easy handling. The appropriate construction guarantees easy installation and transportation. Seasonal overproduction as well as over- and underdrying are processed into valuable goods. The solar tunnel dryers are suitable for agricultural enterprises, family run farms and developing organisations in both arid and humid regions. Since the 1980s, the solar tunnel dryers are in commercial operation in more than 60 countries.

**Type of innovation**

- Technological

**Product category**

- Crops → Vegetables and melons → All vegetables
- Crops → Spice crop → All spices
- Crops → Misc. crop → Medicinal, aromatic, pesticidal, or similar crops
- Crops → Fruits → All fruits

**Enterprise size**

- Small
- Medium

**Placement in the value chain**

- Production - crops/forestry: post-harvest handling

**Location of research**

Greece, Egypt, Ghana, Thailand, Philippines

**Application**

Commercialization

**IPR protection**

No

**Impacts**

Compared to traditional sun drying methods, the use of the solar dryer reduces drying time significantly and prevents mass losses. It provides the collector, taste and texture can be improved essentially. Some researchers reported lower vitamin degradation during the process and a lower energy consumption. Furthermore, hygienic drying conditions are provided. The solar dryer has low manufacturing, operation and maintenance costs since it can be constructed from locally available materials and even under adverse weather conditions the dryer is reliable. Expenditure on transportation decreases whereas benefit from the harvest. It is a useful alternative for smallholder farms.

**Requirements**

The different design settings make it possible to adapt the solar tunnel dryer in many regions. It is apt to dry near-market products and requires only locally available materials and simple tools. Prefabricated units can be ordered from the manufacturer RIVOTECH (Germany) or produced locally. The solar dryer using locally available materials and simple tools can be adjusted to the farm size and the local climate. The solar tunnel dryer is suitable for agricultural enterprises, family run farms and developing organisations in both arid and humid regions. Since the 1980s, the solar tunnel dryers are in commercial operation in more than 60 countries.



## HOW TO SUBMIT

If you have a successful and empirically tested agricultural innovation, please share. Just log in and submit it to the database in 5 easy steps:

**PAR** Home Search **Log In**

**PARI Agricultural Innovation Database**

Welcome to the Agricultural Innovation Database of the Program of Accompanying Research for Agricultural Innovation (PARI). The database includes technological, managerial and institutional innovations that could be applied along agricultural value chains. All of the innovations contained in the database have undergone an impact assessment. The aim of the database is to identify and document the most promising innovations in agriculture and the food sector that have the potential to be scaled up in tropical and sub-tropical countries in general and especially across the countries linked to PARI in Africa and India.

You can search the database by keywords or using different search criteria without requiring a log-in.

If you have a successful and empirically tested agricultural innovation that you would like to share, you are welcome to submit it to the database. To do so, please **sign up** for the database. Once your registration is approved by the administrator, you can enter innovations using the input mask provided. Before your description of the innovation will be seen online, it will be reviewed by the administrator.

For further information, please contact [pari@uni-bonn.de](mailto:pari@uni-bonn.de).

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**Create New Innovation**

**Name of the innovation?**

Up to 100 characters (100 left)

**Overview of the innovation?**

Up to 2000 characters (2000 left)

**Type**

☐ Institutional

☐ Managerial

☐ Technological

Multiple answers possible

**Keywords?**

e.g. grafting, tomato, eggplant rootstock, sudden death, flooding, india

**List of publications?**

Including dissertation, with URL, if available online (up to 2000 characters) (2000 left)

**Submit**

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Innovations entered by Center for Development Research (ZEF)

Name	Created on	Is Approved?
Biopriming seeds with fungal endophytes	2016-01-26 16:47:29	True
M-Farm	2016-01-26 16:35:08	True
Farmer innovation contest	2016-01-26 16:22:03	True

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## THE DATABASE

**Aim:** document the most promising innovations in agriculture and the food sector that have the potential to be scaled up in tropical and sub-tropical countries in general and especially across the countries linked to PARI in Africa and India.

- The Database includes technological, managerial and institutional innovations that
- could be applied along agricultural value chains
  - have the potential to be scaled up
  - have undergone an impact assessment

**Target audience:** research institutes, larger producers / companies, extension service and other intermediaries