

# SOLAR DEHYDRATION



PREPARED BY  
DIRECTORATE OF FOOD PROCESSING  
DEPARTMENT OF INDUSTRY  
GOVERNMENT OF BIHAR, PATNA

# DEFINITION – SOLAR DRYING



Sun Drying also known as solar drying or air drying, is a traditional method of preserving food by using the heat and energy from the sun to remove moisture from food products. This method has been used for centuries as a simple and cost-effective way to extend the shelf life of fruits, vegetables, herbs, and other perishable items.

# SIGNIFICANCE - SOLAR DRYING

Preserving the crops is just as important as growing crops. For this purpose, farmers use various post-harvest practices that protect harvested crops from spoilage and decay. One of these practices is drying. Since every harvested crop contains a certain amount of water, the main purpose of drying is to reduce the crop moisture content to a level that is safe for storage. There are many ways how a farmer can manage drying. However, the oldest and definitely one of the simplest drying methods is sun drying.



Preserving the crops is just as important as growing

# FOOD HANDLING SCENARIO



Every year, an astonishing \$3 Trillion of Agriculture Resources are wasted worldwide (\$500 billion worth of food is wasted on farms worldwide) contributing to a staggering 2.2 gigatonnes of CO2 emissions.

We should aim to minimize this food waste, reduce carbon footprint, optimize agriculture outcomes through Value-added resources, and increase small farmers' profit.

# BUSINESS COLLABORATION

## FARMER – RAHEJA GROUP

A business model where the “Raheja Solar Food Processing” Group provides machines to farmers for solar dehydration and subsequently purchases the dehydrated items demonstrates an integrated and sustainable approach to agriculture and food processing. This model creates a positive impact on multiple fronts, including empowering farmers, promoting economic growth, and contributing to the development of the food processing industry

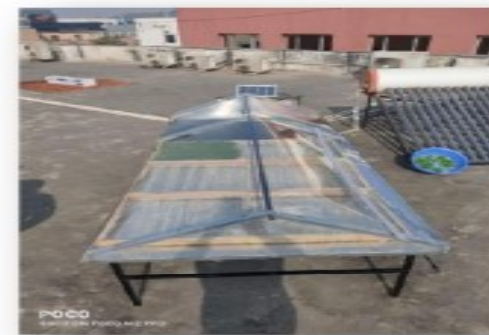
### *Story of our products*



# VARIOUS SOLAR UNITS SPECIFICATION

## SMALL FARM PURPOSE SOLAR DRYER

### SAHAJ - Small Farm Purpose Solar Dryer Model No.: RSFP - C20



The most beneficial solar dryer for all small-scale farmers to gain higher benefits from their produce. It is easy to install and can be operated by everyone.

Features	Specifications
Do It Yourself model (DIY): No expert required for installation	Size: 4 x 8 sq. ft
Light Weight and Portable	Maximum Temperature: 60 +- 10 Degree Celsius
Foldable and Modular structure	Actual Size of solar dryer: Width: 46.5 inches
Protection from Harmful UV radiation	Height: 30 (Ground height) + 16 inches (Tunnel height), Length: 102 inches
Protects from Dust, Dirt, Rainfall, Insects	Solar Panel Capacity: 10 W 12 V
	Air Flow: Forced Convection using 12 V Fan, Number of Fan: 1
	Total Drying area: 20 sq. ft.

**Applications:** All types of fruits, vegetables, herbs, spices, flowers and non-veg.

# VARIOUS SOLAR UNITS SPECIFICATION COMMERCIAL PURPOSE SOLAR DRYER MODEL

## SAMAGRA-1 - Commercial Purpose Solar Dryer Model No.: RSFP- C40



Perfect for the large-scale farmers or small-scale industries, this solar dryer can help boost their income a notch higher. The design of this solar dryer is modular, it can be customized according to the requirement starting from 40 kg.

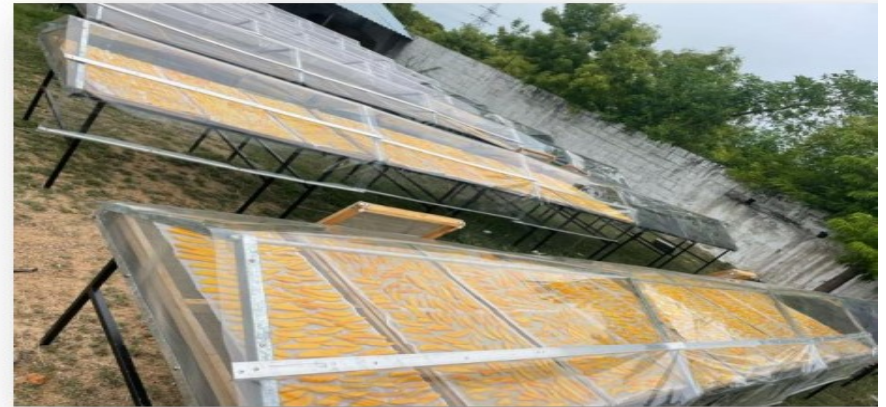
Features	Specifications
Do It Yourself model (DIY): No expert required for installation	Size: 4 x 16 sq. ft.
Light Weight and Portable	Maximum Temperature: 60 +- 10 Degree Celsius
Foldable and Modular structure	Actual Size of solar dryer: Width: 46.5 inches, Length: 204 inches
Protection from Harmful UV radiation	Height: 30 (Ground height) + 16 inches (Tunnel height)
Protects from Dust, Dirt, Rainfall, Insects	Solar Panel Capacity: 15 W 12 V
	Air Flow: Forced Convection using 12 V Fan,
	Number of fans: 2

**Applications:** All types of fruits, vegetables, herbs, spices, flowers.

# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL PURPOSE SOLAR DRYER MODEL

**Model No.: RSFP-C60**



Perfect for the large-scale farmers or small-scale industries, this solar dryer can help boost their income a notch higher.

Features	Specifications
Do It Yourself model (DIY): No expert required for installation	Size: 4 x 24 sq. ft.
Light Weight and Portable	Maximum Temperature: 60 +/- 10 Degree Celsius
Foldable and Modular structure	Actual Size of solar dryer: Width: 77.16 inches Length: 85.03 inches, Height: 30 (Ground height) + 16 inches (Tunnel height)
Protection from Harmful UV radiation	Solar Panel Capacity: 40 W 12 V
Protects from Dust, Dirt, Rainfall, Insects	Air Flow: Forced Convection using 12 V Fan, Number of fans: 4

**Applications:** All types of fruits, vegetables, herbs, spices, flowers.



# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL PURPOSE SOLAR DRYER MODEL

**Model No.: RSFP-C80**



Perfect for the large-scale farmers or small-scale industries, this solar dryer can help boost their income a notch higher.

Features	Specifications
Do It Yourself model (DIY): No expert required for installation	Size: 4 x 32 sq. ft
Light Weight and Portable	Maximum Temperature: 60 +- 10 Degree Celsius
Foldable and Modular structure	Actual Size of solar dryer: Width: 77.16 inches, Length: 85.03 inches
Protection from Harmful UV radiation	Height: 30 (Ground height) + 16 inches (Tunnel height)
Protects from Dust, Dirt, Rainfall, Insects	Solar Panel Capacity: 40 W 12 V
	Air Flow: Forced Convection using 12 V Fan
	Number of fans: 4

# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL PURPOSE SOLAR DRYER MODEL

### RSFP - C100



Perfect for the large-scale farmers or small-scale industries, this solar dryer can help boost their income a notch higher.

Features	Specifications
Do It Yourself model (DIY): No expert required for installation	Size: 4 x 40 sq. ft
Light Weight and Portable	Maximum Temperature: 60 +/- 10 Degree Celsius
Foldable and Modular structure	Actual Size of solar dryer: Width: 46.5 inches, Length: 510 inches, Height: 30 (Ground height) + 16 inches (Tunnel, height)
Protection from Harmful UV radiation	Solar Panel Capacity: 40 W 12 V
Protects from Dust, Dirt, Rainfall, Insects	Air Flow: Forced Convection using 12 V Fan,
	Number of fans: 5

# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL PURPOSE SOLAR DRYER MODEL

**Model No.: RSFP-D500**



For the higher capacity in an industry, this three-tier giant has a capacity to simultaneously dry up to 500 kg of produce in a single cycle.

Features	Specifications
Polyhouse Tunnel shape structure	Size: 8 x 24 sq. ft.
Protection from Harmful UV radiation	Maximum Temperature: 50 +- 10 Degree Celsius
Protects from Dust, Dirt, Rainfall, Insects	Actual Size of solar dryer: Width: 8 feet Length: 24, feet Height: 7.5 feet
Installation required from expert	Solar Panel Capacity: 120 W 12 V
	Air Flow: Forced Convection using 12 V Fan,
	Number of Fan: 5 nos.
	Total drying area with three vertical layers: 360 sq. ft.

# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL POLYDESIGN SOLAR DRYER MODEL



**MODEL RSFP-1000:Capacity – 1000 Kg**

Features	Specifications
Polyhouse Tunnel shape structure	Size: 12 x 32 sq. ft
Protection from Harmful UV radiation	Maximum Temperature: 50 +- 10 Degree Celsius
Protects from Dust, Dirt, Rainfall, Insects	Actual Size of solar dryer: Width: 12 feet Length: 32, feet Height: 7.5 feet
Installation required from expert	Solar Panel Capacity: 120 W 12 V
	Air Flow: Forced Convection using 12 V Fan,
	Number of Fan: 10 nos.
	Total drying area with three vertical layers: 720 sq. ft.

# VARIOUS SOLAR UNITS SPECIFICATION

## COMMERCIAL POLYDESIGN SOLAR DRYER MODEL



**MODEL RSFP-500 ;Capacity – 500 Kg**

Features	Specifications
Polyhouse Tunnel shape structure	Size: 8 x 24 sq. ft
Protection from Harmful UV radiation	Maximum Temperature: 50 +- 10 Degree Celsius
Protects from Dust, Dirt, Rainfall, Insects	Actual Size of solar dryer: Width: 8 feet Length: 24, feet Height: 7.5 feet
Installation required from expert	Solar Panel Capacity: 120 W 12 V
	Air Flow: Forced Convection using 12 V Fan,
	Number of Fan: 5 nos.
	Total drying area with three vertical layers: 360 sq. ft.

# BUY BACK RATES (1/3)

PRODUCTS	Moisture Content	Drying Time	Buy Back rates (INR) /Kg	Monthly requirement
MANGO	5%	2-3 Days	400-450	1000
ONION	0	1-2 Days	120-150	800
TOMATO	5	2 Days	250-320	500
ROSE PETALS	5	6 Hours	340-480	1000
BANANA	10	2-3 Days	200-250	800
LEMON	5	3-4 Days	280-320	800
Blue Pea	4	1-2 Hours	500-550	2000

# BUY BACK RATES (2/3)

PRODUCTS	Moisture Content	Drying Time	Buy Back rates (INR) /Kg	Monthly requirement
Orange	2-3%	3-4 Days	280-320	500
Pineapple	10%	3-4 Days	400-450	500
Apple	10%	2 Days	380-430	800
Mint	5%	1 Hour	120-150	100
Raw mango	0%	3 Days	120-150	100
Rose Buds	3%	1.5 Hours	450-500	300
Ginger	0%	2 Days	180-200	800

# BUY BACK RATES (3/3)

PRODUCTS	Moisture Content	Drying Time	Buy Back rates (INR) /Kg	Monthly requirement
Lavender	5%	1-1.5 Hours	700	500
Hibiscus	5%	1-1.5 Hours	350	1000
RamaTulsi	2%	1-1.5 Hours	100	100
Jasmine	2%	1-1.5 Hours	250	100
Curry Leaf	3%	1-1.5 Hours	80	100
Moringa	5%	1-1.5 Hours	140	100
Garlic	0%	8 Days	140	500
Beetroot	2%	3 Days	170	100



