

Forced Circulation Solar Dryer

(SPRERI VV Nagar & PAU Ludhiana centers)



Function : Used to achieve faster drying of high value products at industrial / commercial scale.

Salient Features : Consists of solar air heaters, electric blower, connecting ducts, drying chamber and control systems for air temperature and flow rate. Equipped with high efficiency packed bed type and low cost unglazed type solar air heaters and electric / biomass based heater provided as thermal back up to supplement heat requirement for operation during cloudy weather and night hours. The system can be designed for drying most of the agro-products.

Performance : Efficiency of the packed bed type solar air heater was found around 40% more than commercial heater, very good quality finished product and agro-products retain their colour and flavour to a large extent.

Approximate Cost : Packed bed type and unglazed type flat plate solar air heaters cost Rs. 3,500 (US \$ 77) & Rs.2000/- (US \$ 44) per square meter area, respectively. A 200 kg/d capacity solar dryer for onion flakes cost two times that of the electric fired dryers. However, cost of the drying per kg product of the solar dryer is less than half that of the electric dryer.

Present Status : A few installations are under operation for drying onion flakes, tomatoes mushrooms etc. The design, installation and commissioning of the solar dryer system can be taken up on consultancy basis.