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ICAR NEWS

A SCIENCE AND TECHNOLOGY NEWSLETTER

RESEARCH UPDATE

PROMISING TECHNOLOGIES

A Farmer Participatory Approach to Manage RPW in Arecanut

Uttara Kannada region with two agro-climatic zones namely, coastal plain and Malenadu with an annual average rainfall of 2700 mm is situated at an elevation of 1860 feet above MSL is considered as Gateway of Western Ghats. Arecanut, coconut, black pepper, banana, cardamom and vanilla are widely cultivated in this region. Arecanut accounts for 31124.15 ha with a production of 77699 Metric tonnes and a productivity of 2500 Kg per Ha. Coconut gardens in this region are spaced between the arecanut gardens. Pests like Arecanut root grub, spindle bug and mites were serious problem in arecanut. Recently, red palm weevil, *Rhynchophorous ferrugineus* (RPW) a destructive pest on coconut and date palms infest arecanut is posing serious threat to arecanut plantations in Tigani, Sirsi region of Uttara Kannada district, where arecanut cultivation accounts for 14 % of the state production.

Arecanut farmer Mr Channappagouda Thammanagouda from Sirsi, Uttara Kannada visited ICAR-KVK Uttara Kannada located at Sirsi and informed that of the 1500 palms in his garden 100 palms

Red palm weevil damage in arecanut palm is Sirsi in Uttara Kannada. Oozing of the fluid from trunk with gummy exudates

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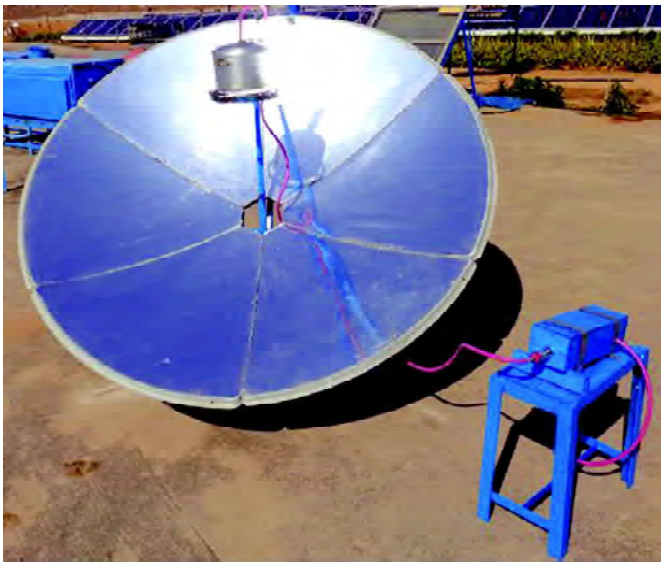
Designing and evaluation of concentrating solar thermal desalination device for hot arid regions

A parabolic concentrating solar thermal desalination device was designed, developed and fabricated. The system comprises a parabolic dish concentrator, evaporating vessel, condensing unit with glass tube, stand and distillate jar. The parabolic dish concentrator uses a parabolic mirror that focuses incoming solar radiation on a receiver mounted above the dish at its focal point. The surface area of parabolic concentrator made of steel is 6.67 m^2 and projected area of disc is 2.54 m^2.The performance evaluation of the device during winter and summer month of the year 2019 was carried out by measuring distillate output per day. Distillate productivity was measured along with evaluation of the effects of environmental and operational parameters that includes: solar insolation, ambient temperature and water temperature under the climatic conditions of Jodhpur, India. The maximum productivity of 6.5 lit day^{-1} within 9 h in a day was measured with the maximum average solar insolation of 745 $W.m^{-2}$ during May 2019 and 5.5 lit day^{-1} in winter month December 2019. The maximum daily average efficiency of 28.7% was calculated with a maximum hourly output of 1.25lit h^{-1}. The distillate output of solar desalination device is to be mixed with the available saline water in appropriate proportion to make it drinkable. In fact as much as 20 litres/day of potable water (150 ppm TDS) can be made available in a day from raw water containing 300 ppm TDS by a solar desalination device. The economic evaluation of the parabolic concentrating solar thermal desalination device revealed that high value of IRR (74.6%) and low value of payback period



Parabolic concentrating solar thermal desalination device

(1.45 Years) make the unit very cost efficient. The economic attributes of the system revealed its economic viability. Therefore this solar desalination device can be successfully used for desalination of saline water in rural arid areas for meeting requirement of potable water. The quality of lab-prepared salt water samples was analyzed before and after desalination and the results comply with the WHO guidelines for drinking water quality.

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Multi-dimensional impact of CAZRI developed watersheds

Impact assessment of Baorli – Bambore watershed implemented by ICAR-CAZRI was carried out during 2016 – 2018. The project was aimed at finding out the various impacts namely, bio-physical, socio-economic and environmental on its members. All the beneficiaries (n=80) coming under the jurisdiction of the selected watershed were selected and non-beneficiaries (n=40) were randomly selected from a village having similar agro-climatic conditions and soil type with no watershed development activities. Impact was studied at pre and post as well as between beneficiaries and non-beneficiaries. The investigation was based on analysis of secondary data available with CAZRI and in the district. The primary data were collected through personal