



Zero Energy Cool Chamber (ZECC)

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Zero Energy Cool Chamber (ZECC) is one of the cheap and best way to store the fruits and vegetables after harvesting. As post harvest losses of fruits and vegetables contribute about 40 % of total produce occur at all the points in the value chain from the production to consumption, there is a need to prevent the losses of fruits and vegetables by proper storage and value addition method.

Introduction

Zero Energy Cool Chamber is an eco-friendly, low-cost technology developed in India to store fruits and vegetables postharvest. It is a small chamber made up with locally available low-cost materials like brick, sand etc. It contains a double walled chamber bricks with coarse sand, which is used to filled the annular space of the storage system. It works on evaporative cooling principles Temperature and humidity are two important factors that plays important role in ZECC about 10 to 15⁰C and 90 % relative humidity.

Steps for Construction of ZECC

- Select an upland under shade having natural air flow and a nearby source of water supply.
- Add a layer of sand to ensure proper drainage.
- Make floor with brick 165 cm X 115 cm.
- Construct double wall brick chamber 70 cm high, leaving a cavity 7.5 cm wide between two walls and fill with wet sand
- Make a frame of top cover with bamboo, straw or dry grass.
- Saturate bricks and sand with water.
- Build a thatched-roof shed to protect from direct sun and rain.

Advantages

- Better marketability.
- Retain nutritive value.
- Environment friendly storage system with no pollution.
- No electrical energy is needed.
- Allows small farmers to store produce for a few days and thus avoid distress sale.
- Useful for temporary storage of curd, milk and cooked food.
- Can also be used for mushroom cultivation, storage of biofertilizer.

