Preparation of low cost trap

- Take used plastic water bottle (1L). Make 3 or 4 windows of 1 inch size with a knife at 3 inches from top of the bottle
- Hang the lure inside the trap and place it in the field at least 3-4 feet above the ground level

Trap from used plastic water bottle

Usage or recommendation of cue lure

- Around 10-12 lures / acre is recommended
- The pheromone trap should be placed from onset of flowering to harvest of the crop
- The lure need to be replaced once in 30-40 days
- The trap should be serviced at 15 days interval

Popularisation of pheromone technology

ICAR-CCARI with assistance from NABARD conducted awareness training programme and field demonstration on use of pheromone traps for cucurbit fruit fly management in various parts of Goa. In this project hands on training on trap preparation, placement, servicing, lure replacement and other integrated pest management approaches were given to the farmers. In addition traps were supplied to the farmers.

Training and demonstration on use of cue lure pheromone traps

Distribution of cue lure pheromone traps

Feedback

Based on the feedback from farmers, the pheromone technology is very effective in managing fruit fly in cucurbits and easy to adopt the pheromone technology.

Acknowledgement

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Pheromone technology for the management of cucurbit fruit fly *Bactrocera cucurbitae*

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Introduction

Cucurbits are important vegetable crops in coastal regions of India. In Goa, cucurbits are cultivated by a specialised group of farmers called *mollekars*. Cucurbits *viz.*, cucumber, ridge gourd, bitter gourd, bottle gourd, snake gourd, sponge gourd, snap melon and pumpkin are cultivated during *Kharif* season. Cucumber occupies the major area followed by ridge gourd, bitter gourd and snake gourd. The melon fly, *Bactrocera cucurbitae* (Coquillett) (Diptera: Tephritidae) is a very serious and economically important insect pest of cucurbitaceous crops. The polyphagous fruit fly attacks more than 125 cucurbitaceous and solanaceous crop plant species in tropical and subtropical regions of the world. It causes significant damage to these crops. The extent of yield loss due to infestation by melon fly in cucurbitaceous crops may vary between 30 to 100% depending upon the season.

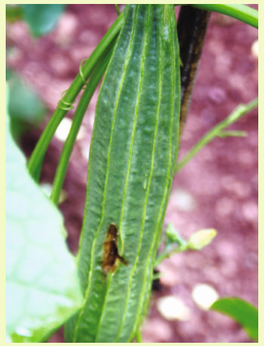
Various cucurbits cultivated in Goa

Symptoms of damage

- Adult female lay eggs in soft tender fruit tissues leads to appearance of small brown resinous deposit on the fruits. This reduces the market value of the produce.
- After egg hatching, the maggots bore into the fruits and make the feeding galleries.
- Infested fruits appear malformed.
- Damaged fruits rapidly rot due to secondary infection (bacterial and fungal) and become unfit for human consumption
- The damage due to fruit flies in Goa ranges from 5 to 20 percent with cucumber being the most susceptible.

View of cucurbits cultivation in Goa

Cucumbers infested by fruit fly



Ridge gourd infested by fruit fly

Life cycle

- Adult female lay eggs in soft tender fruit tissues. Egg period ranges from 2-5 days
- The larval stage lasts for 5- 12 days
- Matured larvae pupate in the soil. Pupal period ranges from 9-12 days

Adult flies inflicting damage on Ridge gourd and Cucumber

Management of fruit fly using pheromone traps

Pheromone traps for cucurbit fruit fly

The sex pheromone released by one sex will trigger the behavioural patterns of other sex that facilitate in mating. Here the sex pheromone produced by female cucurbit fruit fly will attract the male one. The commercial lure having parapheromone (mimic the effect of pheromone) is chemically synthesised attracts the male flies. The attracted flies die in the trap. The sex pheromone is used for monitoring and mass trapping of insect pests.

The cue lure pheromone trap can be prepared by farmers themselves or can be purchased from ICAR-CCARI, Old Goa or Zonal agricultural office or private agro farms. The following are the procedure for preparation of cue lure pheromone traps for management of cucurbit fruit fly

Preparation of cue lure

- Mix Ethyl Alcohol - 60 ml + Cue lure (p-Acetoxyphenyl butanone- 2) - 40ml + Dichlorvos (DDVP) Pesticide - 20ml (i.e. in the ratio of 6:4:2).
- Take Plywood or soft board or straw board squares of approximately 5 x 5 x l.2 cm in size
- Otherwise take ½ inch thick cotton rope & cut the rope into 2 inches size, tie the cut ends with thin wire.
- Any one of these should be soaked in cue lure solution for 24 hrs. Now the cue lure is ready.
- Around 30 lures can be prepared from the above proportions and quantity.

Plywood in cue lure

Cotton rope in cue lure

Cue lure trap

Cue lure trap