



# Pheromone Chemicals

The name you can always trust

Mfrs: **Pheromone Traps, Lures, Yellow sticky traps**

**Leucinodes orbonalis** (fruit and shoot borer) – It is an important and major pest of Brinjal. Excellent results can be found with use of Pheromone Traps – can expect 80 - 90 % control only with pheromones provided sanitation is followed and pheromone traps installed from 1 month crop stage. Farmers and consumers will be benefited a lot by reduced pesticide applications.



Farmers have depended entirely on insecticides to control of *L. orbonalis* but the sustainability of this approach is in question as farmers in some areas of Northern India and Bangladesh are finding that even daily applications do not provide effective control.

The female moth lays eggs individually on the shoots of young brinjal plants. The small larvae that emerge soon eat their way into the tender growing shoots where they are protected from larval parasitoids and natural enemies such as ants and beetles. The feeding activity of the larvae causes the young shoots to droop in a characteristic manner.

As the brinjal plant develops and begins to produce fruit the female moth preferentially lays eggs on the fruit into which emerging larvae burrow. Several larvae can be present in one fruit at a time, depending of the fruit's size. As the larvae burrow into the fruit they block the hole with excrement or frass so preventing predators entering attacking them.

**Host range:** Brinjal, Potato

## **Mass trapping for control of brinjal borer**

The lure is highly attractive to male moths and specific to the target species. The purpose of this activity is to reduce the chances of female moths finding a mate so that she is unable to produce viable offspring. Research by AVRDC suggests that female *L. orbonalis* only mate once and from other research we know that even delayed mating can significantly reduce the number of viable eggs female moths can produce (fecundity). Indeed this is one of the very few examples of the successful use of mass trapping of lepidopterous pests to achieve significant levels of control appropriate for use by smallholder farmers.

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## Trap placement

The optimal trap density is 100 per ha (40 per acre) and control can be achieved in 0.5 ha plots (recommended by Natural Resources Institute, UK). Higher yields can be obtained if Traps are placed at 30 days from transplantation. Traps should typically be placed at crop height or just above to achieve the optimum catch and traps should be evenly spaced in the field (5 m spacing). Mass trapping not completely remove infestation but can reduce damage to less than 20% from a mature crop with 70% damage and works more effectively if insecticide application is stopped. Using a reduced number of traps will still achieve some effect and encouraging neighbours to use them will benefit both farmers.

## Crop Hygiene

Crop hygiene is particularly important in areas of intensive cultivation, and in particular where related crops are cultivated over long periods of time. Infested shoots and fruits should be removed by hand from brinjal fields. Both can act as sources of future infestation. Similarly, at the end of a woody crop residues are often collected and stored for use as firewood. However, these residues contain larvae which emerge the following spring and lay eggs in newly established nurseries. Ideally crop residues should be shredded or burnt before the next crop is planted in the same way that fields are ploughed to reduce populations of soil borne pests and diseases. Alternatively, nurseries should be located as far from crop residues as possible. In general insecticides should be avoided for as long as possible in order to preserve the natural enemies and predators that act to reduce the incidence of *L. orbonalis*

Traps should be placed at crop height or just above to achieve the optimum catch.

Always use Phero – Sensor<sup>TM</sup> – SP / BP for best results.

ETL for *Leucinodes orbonalis* is 6 – 8 No's of moths per trap per day.