

## **Guidelines for the mass rearing and release of the lantana mirid (*Falconia intermedia*) for the use in biological control of *Lantana camara***

### **Introduction:**

*Falconia intermedia* was first released on *Lantana camara* in April 1999. It has established successfully in many areas where *Lantana* is able to maintain sufficient foliage to support breeding of the mirid through winter (i.e. warmer, more tropical areas of the country). In these areas it causes defoliation, stressing plants and reducing flowering and seeding. When the insects are abundant, they re-infest resprouting plants and seedlings.

Successful rearing and establishment of the insect is dependent on plant condition, and success is unlikely where drought or frost stresses the plants. The mirid is more likely to establish if released in spring or summer, and also where at least 5000 are released per site. When they are very abundant at a site for a few seasons some can be recollected to be distributed to other sites.

### **What you might need to rear and redistribute the mirid:**

- A continuous supply of healthy actively growing, insecticide free *Lantana camara* plants (either potted or planted in the soil). At least twice as many plants are needed than those exposed to the insect at any time, which implies that a few plots are necessary when plants are grown in the soil. The scale at which it is to be reared determines plant size and quantities required.
- Gauze covered cage/s large enough to house a potted plant, or a shade house which can house up to several hundred plants (- sufficient insects for release at one site can be reared every month on two large plants in excess of 1,5 m.)
- Equipment to culture and take care of the plants, equipment to harvest and redistribute the insects, which would include a pair of secateurs and containers in which leaves with various stages of the insect can be transported to the releasing site, e.g. rubbish- or cloth bags or cardboard boxes.

### **How to start and maintain the insect culture:**

- The cage should be so positioned as to provide sufficient light for plant growth (*Lantana* grows well under 50% or less shade cloth). Sufficient room should be provided within the cage for the growth of the plant/s as to prevent it from pushing onto the cage walls or roof (this could also cause too much condensation on the cage, which could trap the insects or promote fungal growth).
- Keep backup plants away from the rearing site as to prevent insects that escape from the cages to infest backup plants.
- The starter colony of insects, usually various stages on plant material, can be placed on top of the *lantana* plants, still on the old leaves, inside of the cage. In very large cages the insects on the material can be released in patches spaced out a meter or two apart.
- The following figures could be used as a guide as to how many insects can be released onto a culture plant: A *lantana* plant grown in a 7 litre plant bag with above ground height of approximately 60 cm may have about 250 leaves. This should provide sufficient oviposition sites for 50 insects for a period of about a month

depending on temperature and plant condition. This should yield up to 3000 insects if mortalities are low. For a better synchronised harvesting time the exposure period could be decreased and the number of insects increased. This however requires the adults to be removed and placed on another caged plant. For large quantities of insects that are handled it may be advisable to provide more plant material, which makes it less labour intensive, so the plants can be cut down and the leaves redistributed when the nymphs are older (depending on temperature it can be harvested after about a month). Some material will then be kept and used to re-infest the new plants.

- The condition of the plants must be maintained as much as possible by regular watering and fertilising (mostly nitrogen and very little phosphates).
- Leaf drop should be prevented; if the insects stress the plants too much, more plants can be added but should be touching the other plants. Many of the nymphs and adults will then move by themselves onto the new material.
- Harvesting of the insects can take place by cutting sections of infested branches into either bags or boxes. These can be very lightly compacted as to conserve space, but care should be taken not to squeeze them into the container as to damage the insects trapped in the material.
- When transporting material to a suitable release site care must be taken not to expose the insects to excessive heat, as this drastically increases mortality.

#### **The selection of a suitable release site:**

- The insect is most suited to areas where plants tend to remain in a healthy state throughout the year.
- Next to a river or where sufficient water maintain plants through winter is most desirable
- Plants should not be subjected to frost.
- Release sites can be spaced a few km apart.
- These plants should not be controlled by other means unless establishment has failed for a few seasons.
- The mirid can be used in conjunction with other natural enemies of Lantana.
- The sites should not experience fires.

#### **Releasing of the mirid:**

- The infested plant material that has been harvested, containing about 5000 insects or more, can be placed onto plants in a patch, not spread out more than about 10m.
- This can be done under shade or where the plants are growing in full sun.
- The release form as attached should be completed for each release made to facilitate monitoring of its dispersal.
- On follow up visits characteristic damage should be visible after about a month in summertime, if the insects have established. A search at the area of the damage should reveal adults, nymphs and eggs.
- When the insects are very abundant at a site for a few consecutive seasons, some can be collected for redistribution.
- Monitoring forms should be filled in to keep record of establishment, population progress and impact in different areas.