T.R.I. ADVISORY CIRCULAR No.PM 10

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MANAGEMENT OF TEA TORTRIX (*Homona coffearia* Neitner)

(This Advisory Circular cancels Circular Nos. I 5A, I 5B and I 10, with Serial Nos. 9/94, 10/94 and 1/90 respectively)

1. Introduction

Tea Tortrix is generally a dry-weather pest. However, sporadic outbreaks may occur at other times. The life cycle of Tea Tortrix is about 7 to 8 weeks in the up-country districts (elevation above 1200 m), and 5 to 6 weeks at elevations around 600 m.

1.1 Pattern of outbreaks

	South-West sector	North-East sector
Major outbreaks	Begin around December, and may continue up to about May	Begin around May/June, and continue until about August or September.
Peak periods	February	August

With the onset of dry weather (and also during dry weather spells at other times), tea fields, especially those in the first and second year from prune, must be carefully examined for any signs of Tortrix outbreaks.

Tortrix may come in outbreak proportions even during non-season times, like rainy periods, when for some reason the efficiency of natural control agents has come down.

1.2 Natural control

The pest is effectively brought under control by natural mortality factors, the most important of which include larval parasitism by *Macrocentrus homonae or* protozoan, bacterial and viral outbreaks which are prevalent during wet weather.

Tea Tortrix seems to be the only suitable host for *Macrocentrus homonae,* whose populations fluctuate with fluctuations in populations of Tea Tortrix.

2. Population monitoring and sampling

Monitoring a pest population is the first step in developing a proper Integrated Pest Management (IPM) programme. Population monitoring can be used to assess the build-up and spread of a Tea Tortrix infestation.

2.1 Surveillance at the beginning of the 'Tortrix season'

2.1.1 Visual signs

The tiny larvae begin their life in a nest formed either at the tip of the first leaf or by spinning together the unopened bud and the first leaf. Tea pluckers can be trained to identify these signs.

If proper vigilance is maintained, and if pockets of infestation are observed at the early stages, it may only be necessary to carry out spot-spraying. Areas as small as one acre could be selected for

spot treatment. An area of about one acre in extent could be sprayed around the centre of the pocket affected by the pest. It is better to avoid blanket spraying of whole fields.

Alternatively, these small extents can be hard plucked in order to remove a majority of the developing Tortrix caterpillars (The harvested flush should be discarded).

As peaks of tiny caterpillars occur in about two months, there is no necessity to hard pluck at every round.

2.1.2 Use of moth traps for population monitoring

The emission of pheromones by the female Tea Tortrix to lure the males can be made use of to monitor the build-up of the moth populations in the field, and to forecast Tortrix outbreaks.

The trap must be lined with a sticky surface to entrap the male moths lured into the system. Traps can be of many types. A schematic diagram of the pheromone trap and setting up of a trap is shown in Figure 1.

The synthetic emitter releases pheromone continuously and is effective for 4 - 8 weeks. Replenishment of the lure depends on its period of efficacy.

Male moth collections should be recorded daily. A high count of trapped moths (in the range 100 – 200) is indicative of a large population of active moths in the particular field, and there would be a build-up of a large number of egg masses within about a week of such catches.

The number of traps required per hectare is about ten.

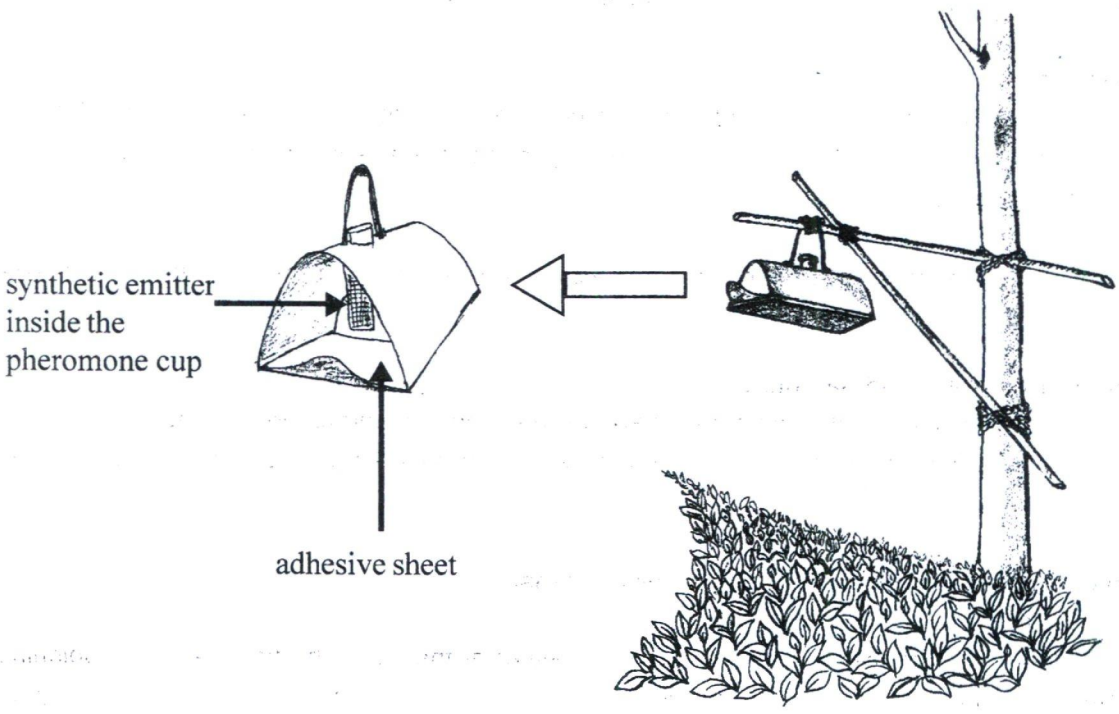


Figure 1. Setting up of pheromone trap in the field and a closer view of a trap

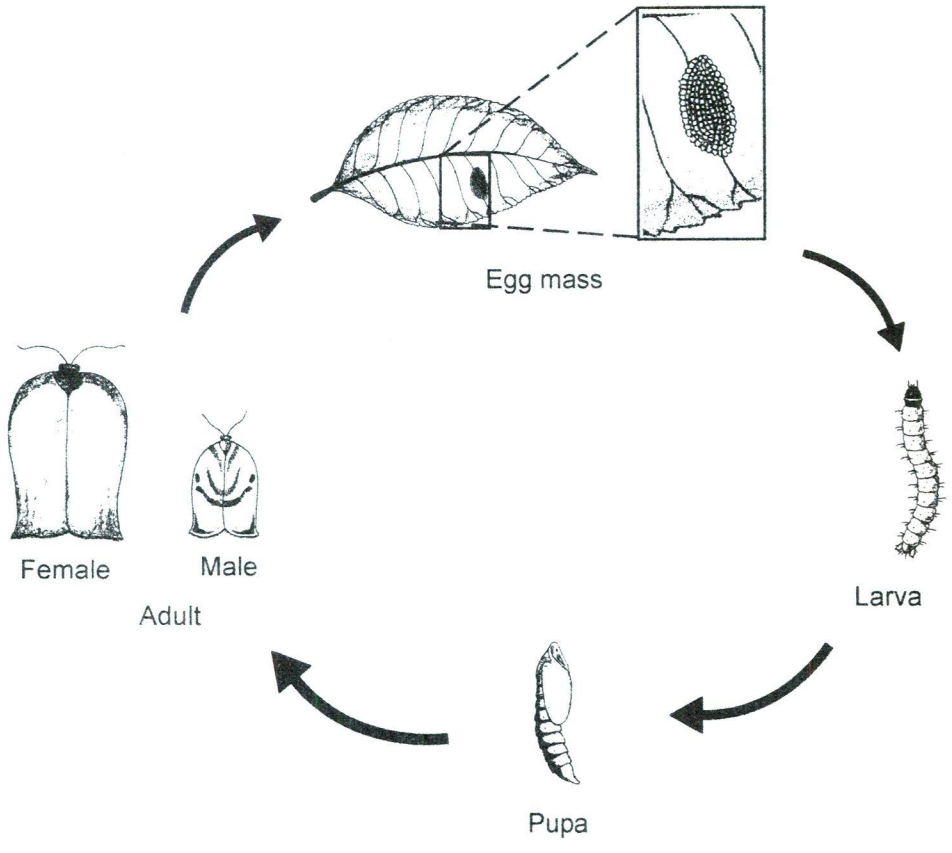
The periods for setting up traps in the fields are from October-November in the South-West quarter while in April-May in the North-East quarter.

3. Surveillance during the middle of the 'Tortrix season'

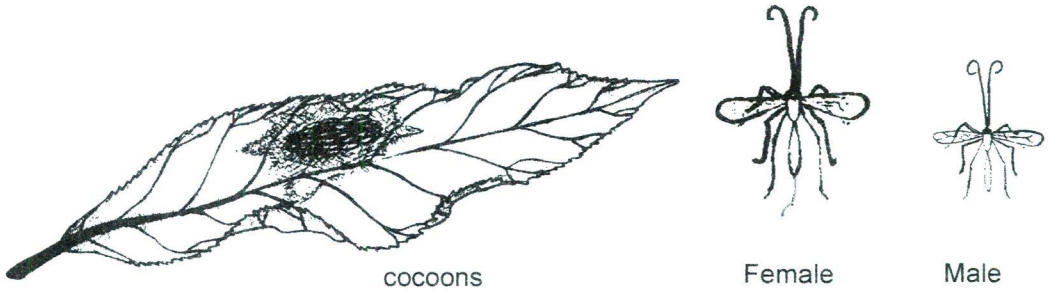
3.1 Implementation of control measures

Towards the middle of the Tortrix season, many fields would be infested simultaneously, without infestations being confined to small pockets. Affected areas are large, spreading over a few hundred bushes, or over the whole field.

There is always a mixed population of several generations of Tortrix (Figure 2 a): live caterpillars of different sizes, carcasses of dead caterpillars, the pupae, the emerged pupal cases, and masses of *Macrocentrus* cocoons (Figure 2 b).



a. Life cycle stages of Tea Tortrix



b. A mass of *Macrocentrus* cocoons and male and female adult *macrocentrus*

Figure 2. Different stages of life cycles of Tea Tortrix and *Macrocentrus*

It is necessary to carry out an assessment before attempting to control mid-season outbreaks. The method of assessment is given in Figure 3.

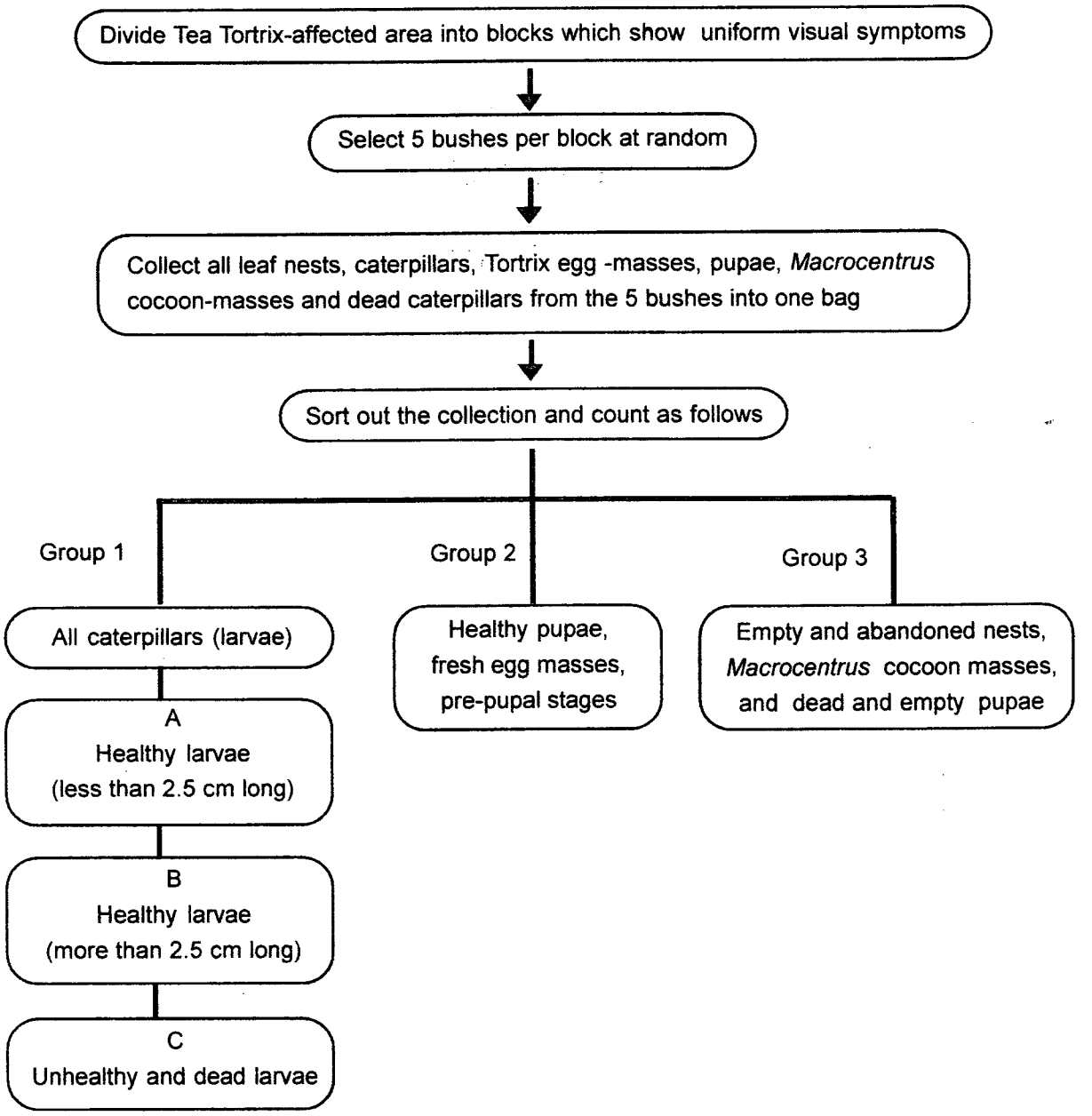


Figure 3. Method of assessment of surveillance during the middle of the 'Tortrix season'

3.1.1 Decision-making for management of the pest

Group	1	2	3
If the percentage is more than	75%	75%	75%
Activity	Count A, B and C separately	WATCH OUT FOR A NEW GENERATION OF MOTHS	
Decision	If A is more than 50% of the collection: SPRAY INSECTICIDE		DO NOT SPRAY INSECTICIDE

3.2 Recommended insecticides and usage

Insecticides recommended for Tea Tortrix control are growth-inhibitors, acting specifically on lepidopteran insects and disrupting their development by inhibiting chitin-synthesis, and thereby arresting the moulting, leading to death (*Refer Advisory Circular No. PU 4*).

When overlapping generations occur, as in the case of major outbreak periods, spraying is repeated at 2-week intervals.

3.3 Time of insecticide application

A large population of feeding caterpillars can be expected within 2 -3 weeks of large catches of moths. An appropriate insecticide may be sprayed during this period.

The small pockets of populations noticed in the very early part of the season (September – November in the South–West quarter, and February – May in the North–East quarter) should be left alone for parasites to deal with the Tortrix, without any attempt being made to control them chemically. However, if outbreaks occur during quality seasons, it should be suppressed by means of a chemical spray at the correct time.

Chemical control should not be attempted when the attack has advanced to a stage where the plucking table is totally damaged, and when, seen from a distance, the tea looks severely scorched. By this time, the majority of the caterpillars have either stopped feeding prior to pupation, or have perhaps pupated.