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## SAMPLING FOR SHOT-HOLE BORER ASSESSMENT

(This Advisory Circular supersedes the Advisory Circular PM 1 Serial No. 1/03 issued in February 2003 and related previous Advisory Circulars and links with Advisory Circular PU 4 and PM 2)

It is essential to estimate the infestation level of Shot-hole borer (SHB) (*Xyleborus fornicatus* Eichh.), synonym. *Euwallacea fornicatus* when tea fields are infested with SHB, before deciding on the appropriate control measures.

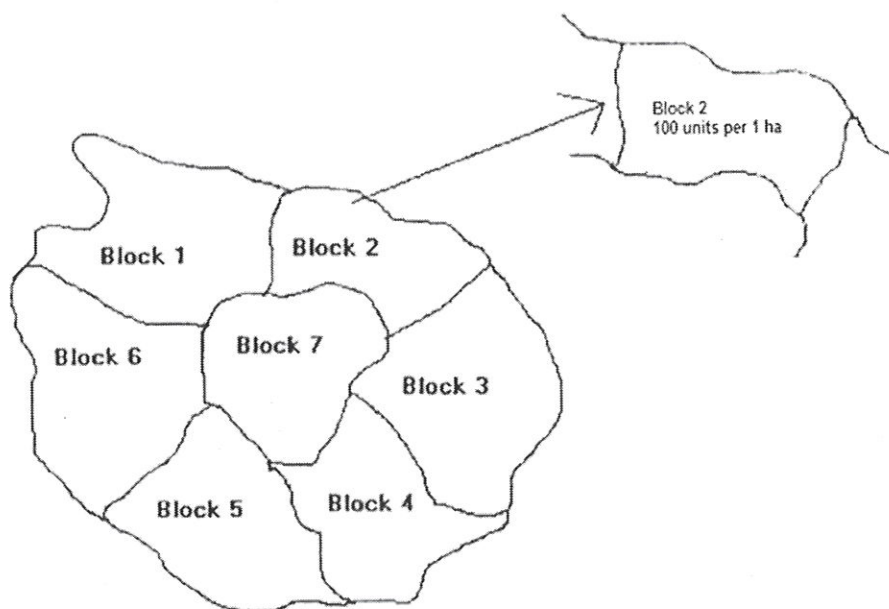
### 1. When to Sample

**Immature fields:** Sampling should be carried out just prior to first formative prune.

**Mature fields:** Sampling should be carried out in the final year of the pruning cycle.

### 2. How to Sample

Sampling should be carried out in one hectare block separately. Blocks could be demarcated by natural boundaries such as roads, paths, ravines, drains, shade trees *etc.*, wherever possible (Figure 1).



**Figure 1: Division of a Field into Blocks for sampling**

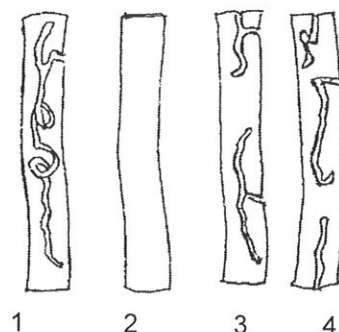
Sampling should cover the whole extent of the block to obtain a representative sample. It should comprise 100 standard units per ha, taking not more than one unit per bush. If there is more than one cultivar in a given field each cultivar should be assessed separately.

### 3. Standard Units

Having selected a bush at random, remove a primary branch arising from the pruned stem that would give a piece of stem 10 cm in length. This piece of stem is referred to as a 'standard unit'. The selection of the branches should be at random and no attempt be made to select only those showing signs of galleries.

The standard units should be split open and examined for galleries (Figure 2). When estimating the incidence of gallery making, one should bear in mind that the number of galleries per sample unit is immaterial. The unit that has one or more galleries is considered as a single infested unit.

If there is more than one cultivar in a given field each cultivar should be assessed separately



**Figure 2: The number of units with galleries that is counted**

1. A unit with one gallery (galleried)
2. A unit with no galleries (not galleried)
3. A unit with two galleries (galleried)
4. A unit with three galleries (galleried)

Number of galleried units = 3

#### 4. Estimation of Infestation

The standard units should be split open and examined for the presence of galleries. The percentage incidence (as percentage gallery making) of gallery making (G%) is calculated as follows:

$$G\% = \frac{\text{No. of galleried units}}{\text{Total no. of units sampled}} \times 100$$

#### 5. Recommendations

% Gallery making (G%)	Degree of infestation	Control measures
0 - 25%	Light	Not necessary
26 -50%	Moderate	Necessary
51-100%	Heavy	Compulsory

Please refer Advisory Circular PU 4 and PM 2 to implement the control measures appropriate to the field based on above recommendations.

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