



Plants wrapped with Non Woven fabric

d) Bark Scrubbing

Remove the loose scaly bark of the main stem and thick primaries using a coir glove to reduce the cracks and crevices in which the eggs are deposited. Scrubbing should be completed before the start of the flight period. Deep scrubbing with any sharp implement should be avoided as it may injure the green tissue leading to death of the plant.

e) Lime Washing

Application of 10% lime (spray lime at 20kg in 200 litres of water along with 200ml Fevicol DDL) on the main stem and thick primaries is found to afford good protection against the borer attack. Provided, lime application should be completed before the start of flight periods. The lime fills the cracks and crevices, preventing the female borer from laying of eggs on such surfaces. It is best, if the lime application is taken up after a light scrubbing of the stem so that the loose scaly bark is removed and the lime adheres better.

f) Use of pheromone traps

The coffee white stem borer pheromone trap (available at CCRI, CRSS, Chettalli & RCRS, Thandigudi) can be installed in the coffee estates for monitoring and trapping the beetles during the peak flight periods (April-May and October-December) to reduce the infestation.

The cross vane can be mounted on a wooden stake (a pole cut from a tree also can be used)

of 5 feet in length so that the overall height of the whole unit is about 6 to 6.5 feet. The lure is the synthesized male sex pheromone of the coffee white stem borer. The chemical name is 2-hydroxy-3-decanone, which is specific to this species.



Pheromone trap

The traps should be spaced out in the form of a grid of 25 traps each with a spacing of 20 m between traps. Installing traps alone will not give the desired results. All the other measures should be integrated to get the best results.

g) Chemical management

Use of insecticide should be exercised only in hot spot areas. Spray the main stem and the thick primaries with Phenthoate 50EC or Fipronil 5SC @ 400ml/200L of water along with 200ml of wetting agent during the second week of April and October.

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MANAGEMENT OF COFFEE WHITE STEM BORER



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White stem borer is the most serious pest of Arabica coffee in India. Arabica coffee is the most preferred and principal host plant. Other host plants include Robusta coffee, teak, *Olea* sp., etc. However, its breeding in plants other than Arabica coffee is very rare. The adult beetles are slender, elongate (2-2.5cm in length) with a pair of long antennae.



CWSB -adult

Adults are active during bright and hot weather. Female beetles lay eggs in the cracks and crevices of the coffee plant under the loose scaly bark of the main stem and thick primaries, preferring the plants exposed to sunlight.

Each female lays about 100 eggs. Eggs are elongated, oval, and milky white at first and turn pale yellow later.

Eggs hatch in 7-10 days. Hatched-out grubs bore into the corky portion of the bark and they feed on the periphery of the stem for about two months. Later, they enter into the hard wood and make tunnels in all directions. In some cases, the tunnels may extend into the roots. The tunnels are filled with excreta of the grubs.

The grub stage lasts about 5 - 10 months depending on the flight period after which it pupates in a chamber close to the bark. The fully

grown larva is about 2-3 cm long, pale yellow and broader at the head region. The pupal stage lasts for about a month after which it transforms into an adult beetle. The adult remains in the pupal chamber for 3-7 days and emerges out by making an exit hole.

Symptoms and damage

Affected plants show externally visible ridges around the stem. They may also exhibit signs like wilting and yellowing. Infested plants (up to 7-8 years old) die in a year, while older plants withstand the attack for a few seasons. However, such plants are less productive, yielding more floats.

Flight periods

There are two peak emergences or flight periods; one during April-May and the other during October-December. Cloudy and wet weather delays the emergence of the beetles.



Ridges on the stem Yellowing of Leaves Damage inside the stem

Management

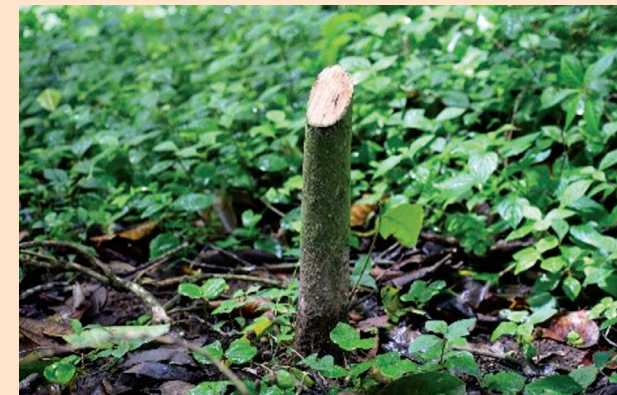
a) Shade maintenance

A two-tier system of shade is essential. The upper level of mixed species of permanent shade trees and a lower level of temporary shade trees like dadap, (*Erythrina* sp) is required. The shade trees should be regulated in such a way that the coffee plant is not exposed during the flight period of the beetles.

b) Tracing, uprooting and destruction

Tracing can be done throughout the year by identifying the ridges on the coffee plants and with the other symptoms during periods of

moisture stress. Uprooting and destruction of borer-infested plants should be completed before the end of March and September every year. During the tracing, the infested plants can be collar pruned first at a height of 45 cm from the ground.



Collar pruned plant

If there is no infestation in the bottom portion, the plant can be allowed to grow with suckers. If the borer has entered into the root, the entire plant has to be uprooted and destroyed immediately. If the uprooted stems have to be used for other purposes, they should be immersed under water for at least ten days so that all the stages inside are killed. The stems can be stored after this treatment.

c) Stem wrapping

During the tracing, if some plants show less or initial symptoms of damage and are carrying good crops, such plants can be wrapped with Non-Woven Fabric (more than 1 mm thickness). The main stem and thick primaries can be wrapped with strips of non-woven fabric without leaving any gaps. This prevents the emergence of adult beetles from infested plants and prevents further spread. Wrapped plants would recover, if the infestation were in the early stages.

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