

Description of Funnel Type Slippery Trap (FTS Trap): An Innovative Technique for the Non-chemical Control of Mango Mealy Bug



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Funnel Type Slippery Trap (FTS Trap) is made up of thick, smooth and transparent "Shesha plastic" sheet. A narrow strip of said plastic fabric measuring 10-12 inches wide and 9-12 inches loose than girth of the targeted tree is cut. One inch margin of this strip is folded down along length and stitched to accommodate the iron wire. Before installation, a 12-14 gauge iron wire is passed through this fold along upper margin. While installing FTS trap, the folded margin of plastic strip enclosing iron wire is erected like a funnel around the tree. Open margins of plastic strip at width and ends of iron wire passing through upper margin are stitched together with stapler whereas the lower margin in length is systematically ruffled (to reduce its length) and tightly fixed on stem with nails. Finally, the lower margin fixed with nails is covered with mud paste to arrest chances for the nymphs to escape up through cracks on stem. These traps are fixed on tree stems almost 3-4 feet above the ground level in the month of January.

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Fig 1: Mango mealy bug nymphs gathered/arrested below the FTS trap

During field research, this innovative technique has been proved to be the most effective barrier against mango mealy bug nymphs while crawling up the trees in January (see Photo Fig. 1) and successfully entrap the egg carrying females (when each female carry 350-400 eggs) while crawling down the tree for egg laying in the soil during the month of May (see photo Fig. 2, 3). The females entrapped in FTS trap die within days due to high environmental temperature. Un-slaked lime powder (1inches layer) placed in funnel of the trap has also been found to effectively kill the entrapped egg-carrying females.



Fig. 2: Installed FTS trap on mango tree to entrap the egg carrying female bugs coming down for egg laying in the soil during the month of May.

The mango mealy bug sometimes directly fall on the ground due to wind shaking therefore trap should be kept active for two consecutive years from January to May in order to achieve optimum pest control results. The efficacy of funnel type slippery trap is wonderful since it efficiently works both-ways (effectively restrict crawling up of the bug nymphs toward tree crowns and entrap mature bug females coming down the trees for egg laying). Studies have indicated that almost 89% of the bug nymphs fall down while trying to crawl up over the wall of newly installed funnel type slippery trap. The escaped 11% nymphs may reach fruiting bodies of mango tree, mature there and copulated by winged males. Out of these 11% nymphs, the conceived females are highly important since each of them carry 350-400 eggs.



Fig. 3: FTS trap showing entrapped egg carrying mango mealy bug females during the month of May

The old mango mealy bug control techniques (Slippery Band, Sticky Band etc.) only partly arrest the up word movement of the nymphs to control the pest. The new Funnel type slippery trap have edge on all other old mango mealy bug control techniques as it not only arrest the up word movement of the nymphs but also entrap the egg carrying females on their way back to the ground for egg laying and leave non to reproduce the next progeny.