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# Forecasting and Management of Spiralling Whitefly in Mulberry Ecosystem

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Sericulture is an agro-based cottage industry. It involves rearing of silkworms at the end of final moult; the larva is produced of silk to cover the protective body for the harsh climatic condition. The cocoon outer region of silk can be used for making varieties of items. The major activities of sericulture comprise *viz.*, mulberry cultivation and production of mulberry leaf; it is used to feed silkworm larva can finally produced for raw silk. In sericulture it can be obtained for the quality of cocoon and silk production directly influences mulberry. 60- 70 percent of silk is directly derived from protein of mulberry leaf. Now, pests are a serious threat to mulberry growing areas. It is estimated that 20 -30 percent of yield losses can be reported by pests.

## Status of spiraling whitefly

The spiraling whitefly is a major pest in tropical areas particularly in Tamil Nadu at the movement reported in huge numbers of crops such as coconut, banana, Mulberry, guava, duranta etc. The spiraling of waxy material is the feature from which this whitefly derives its common name, the spiraling whitefly.

## Alternative host

The spiraling whitefly has been recorded on 38 genera of plants belonging to 27 families and more than 100 species. Specific plants that are attacked include Guava, Cassia, Abutilon, Annona, Banana, Citrus, coconut, egg plant, Indian bayan, mango, palm, papaya etc.

## Identification pest in mulberry

It is a polyphagous feeding type of pests and serious insect pest of mulberry. The name spiralling is derived as it lays eggs in a typical spiral pattern

## Biology

Eggs are laid on lower leaves with irregularly spiralling deposits of waxy white flocculent. The adults of *A. dispersus* are much larger than the more common *Bemisia tabaci* and are white with powdery waxy scales all over the body and wings. Adults congregate on the lower surface of leaves, where they lay yellow elliptical eggs. The egg period lasts for four to six days.The entire nymphal period lasts for 14-21 days. The total life cycle ranges from 21-32 days.

## Seasonal incidence

It is recorded and damage having throughout the year with high incidence in summer (March – June) and low in winter (October- January).

## Damage and symptom

**Healthy mulberry leaves**

**Affected plant**

It is a piercing and sucking type of mouthparts can be sap from foliage by nymphs and adults stages of whiteflies. The heavy infestation done by the first of nymphal stages, which infest the lower surface of leaves resulting in chlorosis, yellowing, upward curling of the leaves, leaf fall and retardation of growth.

- The nymphs on desapping of the leaves from the lower surface of leaves
- Infected leaf having rapidly depletes nutritive value content of leaves.
- Nymphs and adults cause damage. Adults and nymphs congregate on the lower surface of leaves. Desap the leaves, resulting in yellowish speckling on leaves.
- Leaves crinkle and curl also having honey dew severs as a substrate on which sooty mould appears. Infestation spreads from the bottom leaves to the top.
- Direct crop damage contains when whiteflies feed on the plant phloem, remove plant sap and reduce plant vigour. With high population plants may die.

## Management

**Mechanical/ Physical control:**

- Collection and destruction of mulberry leaves with egg masses, nymphs and adults

- Removal of the weed bushes in nearby mulberry garden.
- Use sprinkler irrigation to disturb white fly population.
- Fix yellow sticky traps @ 75-80 traps/acre to trap the adults.

**Chemical control:**

- Spray 0.076% DDVP (@ 1 ml/lit water) 12 days after pruning (safety period: 10 days)
- 0.5 percent neem oil mixed with 2ml soap solution at 1:2 ratio safe period: 7 days.

**Biological control:**

- Release predatory lady bird beetles *Menohilus semaculatus*- 200 adults/acre, *Cryptolaemus montrouzieri*- 300 adults/acre and Scymnus coccivora @ 500 adult beetles/acre.
- Release another predator Green lace wing – 300 grubs/acre effective controlling for the pest population in the mulberry ecosystem.
- *Encarsia formosa is* an larval and pupal parasitioed to effectively controlling in pupal stages of spiralling whitefly.

## References

1. Dandin SB, Giridhar K. Handbook of sericulture technologies. Central Silk Board, Bangalore, India; 2014.