



## **Management of Thrips in Chilli**

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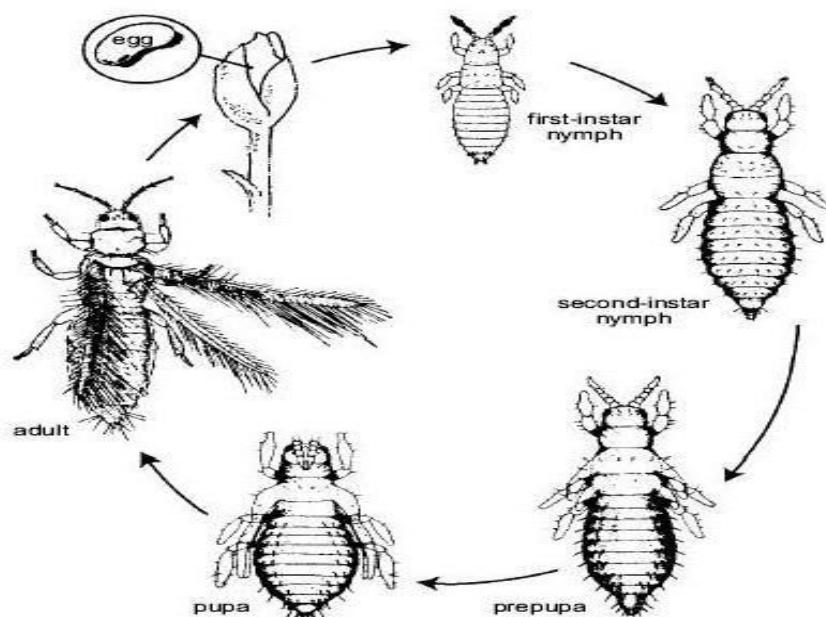
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### **Introduction**

Chilli (*Capsicum annam* L.) is one of the important condiment cum vegetable crop used as ingredient in culinary preparation especially in South India and Sri Lanka. The world production of chilli crop sums up to 7 million tonnes that is cultivated on approximately 1.5 million hectares of land. India is the world leader in context of chilli production followed by China and Pakistan. The bulk share of chilli production is held by the Asian countries, though it is produced throughout the world. India is also the largest producer and exporter of chilli in the world. It contributes to ¼th share in the total quantity of chilli exported in the world. Its production level hovers around 1.1 million tons annually. The major states where chilli is cultivated in India are Andhra Pradesh, Karnataka, Maharashtra, Orissa, Rajasthan and Tamil Nadu. These states contribute around 86% of total area for the chilli crop cultivation in the country and 90% of the total Indian produce. Indian dominance is due to India's variable supply and high domestic consumption. China ranks next to India in chilli export. World trade in chillies account to an approximate of 16% in the total spice trade in the world. In India, chillies are produced throughout the year. Two crops are produced in the year in each dry (March - July) and wet season (August - December). Insect pests are the major menace in chilli cultivation, among the various insect pests, thrips (*Scirtothrips dorsalis* H.) is prime importance in causing severe infestation and yield reduction.

### **Biology**

The life cycle of *Scirtothrips dorsalis* consist of an egg stage, two nymphal stages, a prepupal stage and a pupal stage. The eggs are microscopic (0.075 mm long and 0.070 mm wide), kidney shaped and creamy white in colour. Females insert eggs inside plant tissues above the soil surface. The eggs hatch between two to seven days, depending upon temperature. Nymphs entering in to the metamorphic processes and the pupa is formed on plant crevice such as bark, leaves and flowers. The pupal duration can range from 2-7 days. Adults are about 1.2 mm long with dark wings and dark spots forming incomplete stripes on the abdomen. The shaded forewings are light in color with straight fringed hairs.



**Fig. 1:** Life cycle of chilli thrips

### ***Symptomatology***

Thrips possess piercing and sucking type of mouthparts and cause damage by extracting the contents from individual epidermal cells leading to necrosis of tissue. This changes the tissue color from silvery to brown or black. It prefers to feed on new and young plants. Both nymph and adults of chilli thrips tend to gather near the mid-vein or borders of the host leaf lacerate the leaf tissues and feed on oozing sap and create damaging feeding scars, distortions of leaves, discolorations of buds, flowers and young fruits. Farmers can easily identify the symptom by observing the upward rolling of the leaf margins, elongated petiole and leaf size reduction. A severe infestation of chilli thrips makes the tender leaves and buds brittle and leaf margins curled upwards, heavy infestation of chilli thrips changes the appearance of the plant to what is called “chilli leaf curl” or “chilli murda complex”. The severe infestation leads to stunted growth of the plants, flower formation, bud dropping and poor fruit setting.

### ***Limiting Factors***

- Chilli thrips characterised by relatively short life cycles, can complete several generations on a crop. Adult and nymphs of these pests suck sap from the leaves and growing shoots.
- Monocropping of chilli in traditional growing tracts of Tamil Nadu, Andhra Pradesh and Karnataka resulting it to become regular pest and led to qualitative and quantitative crop loss.
- The indiscriminate and continuous usage of any inorganic insecticides and synthetic pyrethroids have led to resurgence, insecticide resistance and secondary pest outbreaks in addition to upsetting the natural ecosystem.



- The presence of pesticide residues in chillies is a major non-tariff barrier against export. Lack of awareness among the farmers in diagnosing the symptom of thrips attack in early stage to take up preventive measures.

## Management:

- Sprinkling of water in nursery and seedlings helps to avoid reduce and multiplication of thrips population.
- Application of increased level of potash (45kg/ha) with recommended dose of nitrogen (160kg/ha), phosphorous (60kg/ha), farm yard manure (25 tonnes/ha) and Zinc sulphate (21kg/ha).
- Seed treatment with imidacloprid 70WS 12g/kg of seed is effective up to 25 days.
- Cultivation of chilli followed by thrips susceptible crops like sorghum or onion should be avoided.
- Mixed crop cultivation of chilli with onion crop must be avoided since both the crops attacked by thrips and encourages the multiplication.
- Intercrop with agathi, *Sesbania grandiflora* to provide shade which regulates and minimize thrips population.
- Application of any one of the following insecticides if the population exceeds ETL (1thrips/leaf), Carbofuran 3 G @ 33kg/ha or Phorate 10 G @ 10kg/ha or spray with any one of the following insecticide viz., Dimethoate 30 EC @ 1.0ml/lit, Thiocloprid 21.7 SC @ 0.5 ml/lit, Imidacloprid 17.8 SL @ 0.3ml/lit, Emamectin benzoate 5 SG 0.5g/lit, Fipronil 5 SC @ 1.5 ml/lit, Spinosad 45 SC @ 0.5 ml/lit.



**Fig. 2:** Upward curling of leaves due to thrips attack



**Fig. 3:** Thrips damage leads to malformed and under developed fruits