

Taxonomy, Ecology and Management of Thrips

Neha Girish Matra¹ and Saif Ali Khan²

¹Ph.D. Scholar, Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth, Rahuri,
(Maharashtra) 413722

²Ph.D. Scholar, Rajasthan Agricultural Research Institute, SKNAU, Durgapura, Jaipur,
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Introduction:

Man thinks he is the supreme conqueror of nature with all his intelligence and the resultant scientific discoveries and advancements. But insects had taken complete possession on land and thoroughly mastered the world. Insects for getting their own requirements damage the plants and animals in a variety of ways. There is hardly any plant that is not infested by some insect pest or other. Likewise, one of the major insect pests devastating the major crops of agriculture is Thrips. Thrips, order Thysanoptera, are minute, slender, soft bodied insects. Thrips are a functionally diverse group, with nearly half of the known species being fungivores. A small proportion of species of thrips are serious pests of commercially important crops. Some of these serve as vectors for over 20 viruses that cause plant diseases, especially the Tospoviruses. Many flower-dwelling species bring benefits as pollinators, with some predatory thrips feeding on small insects or mites. Thrips can readily move long distances floating with the wind or transported on infested plants, and exotic species are periodically introduced.

Mouth parts are rasping and sucking. Mouth cone is formed by the labrum and labium together with basal segments of maxillae. There are three stylets derived from two maxillae and left mandibles. Right mandibles is absent. Hence mouthparts are asymmetrical. Wings are either absent or long, narrow and fringed with hairs which increase the surface area. They are weak fliers and passive flight in wind is common. Tarsus is with one or two segments. Abdomen is often pointed. An appendicular ovipositor may be present or absent. Spring is when thrips start hatching or emerging from hibernation. They reach maturity after two weeks and start reproducing until fall. Thrips damage plants through feeding both in the nymph stage and as adults. Although they usually only live for one or two months, many generations can appear within a single year. Generations per year – up to 40. Offspring per

cycle – 20 to 50. Active during – daytime. Thrips lifespan – 45 days as an adult, not including hibernation. Type of reproduction: Sexual (male and female) oviparity (egg laying). In some cases, asexual parthenogenesis and give birth.



Taxonomy:

Kingdom	: Animalia
Phylum	: Arthropoda
Class	: Insecta
Order	: Thysanoptera
Family	: Thripidae
Subfamily	: Thripinae
Genus	: Thrips
Species	: <i>Thrips physapus</i>

Ecology:

It is a polyphagous plant pest that inhabits tropical, subtropical, and temperate regions of the world. Thrips are believed to have descended from a fungus-feeding ancestor during the Mesozoic, and many groups still feed upon and inadvertently redistribute fungal spores. These live among leaf litter or on dead wood and are important members of the ecosystem, their diet often being supplemented with pollen. Other species are primitively eusocial and form plant galls and still others are predatory on mites and other thrips. Two species of *Aulacothrips*, *A. tenuis* and *A. levinotus*, have been found to be ectoparasites on acetalionid and membracid plant hoppers in Brazil. They prefer tender parts of the plant, such as buds, flowers and new leaves. Some flower-feeding thrips pollinate

the flowers they are feeding on, *Scirtothrips dorsalis* carries pollen of commercially important chilli peppers.

Management:

Thrips are difficult to control. If management is necessary, use an integrated program that combines the use of good cultural practices, natural enemies, and the most selective or least-toxic insecticides that are effective in that situation.

Biological control: Predatory thrips, green lacewings, minute pirate bugs, mites, and certain parasitic wasps help to control plant-feeding thrips. A minute pirate bug, *Macrotracheliella nigra*, and green lacewing larvae are important predators of Cuban laurel thrips. *Euseius* species mites are important predators of citrus thrips.



Cultural control:

Avoid planting susceptible plants next to these areas, and control nearby weeds that are alternate hosts of pest thrips. Keep plants well irrigated, and avoid excessive applications of nitrogen fertilizer, which may promote higher populations of thrips.

Mechanical control:

Use of different colored sticky traps.



Chemical control:

Contact insecticides that do not leave persistent residues can be effective for greenhouse thrips and other species that feed openly on plants. Contact insecticides include



azadirachtin (AzaMax, Safer Brand BioNeem), insecticidal soaps (Safer), narrow-range oil (Bonide Horticultural Oil, Monterey Horticultural Oil), neem oil (Green Light Neem, Schultz Garden Safe Brand Neem Oil), and pyrethrins, which many products combine with piperonyl butoxide (Ace Flower & Vegetable Insect Spray, Garden Tech Worry Free Brand Concentrate). Spinosad is generally more effective against thrips.

