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Thrips parvispinus & Pepper Production

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Figure 1. *Thrips parvispinus* adult female.
Photo credit: Alexandra M. Revynthi

Thrips parvispinus Karny (Thysanoptera: Thripidae), also known as the pepper thrips, is native to Asia and is present worldwide, including Africa, Europe and North America. *Thrips parvispinus* was discovered in the U.S. in Florida in 2020 and has since been reported in Colorado, Georgia, North Carolina, Pennsylvania, South Carolina and Ontario, Canada. *Thrips parvispinus* feed on a wide range of ornamental, vegetable and fruit crops. It is important to identify thrips accurately because not all thrips species are susceptible to the same insecticides and biological control agents. This article discusses the biology and behavior, damage and management of *T. parvispinus*

associated with indoor pepper production.

Biology and behavior

Thrips parvispinus females and males vary in appearance. Females are approximately 1.0 millimeter in length, have a brown head, yellow thorax and black abdomen. In addition, more than half of the wings are black (Figure 1). Males are about 0.6 millimeters long and yellow. The life cycle consists of an egg, two larval instars (stages between each molt), two pupal stages and an adult.

The life cycle, from egg to adult, can be completed in 12 to 15 days at 80.6F (27.0C), 18 days at 70.8F (21.6C), and 28 days at 63.6F (17.6C). Females lay between 50 and 69 eggs, depending on temperature, during their nine-day lifespan. Females insert eggs into plant leaves. Larvae emerge (eclose) from the eggs after four to five days and feed on leaves or in flowers. Larvae eventually enter the growing medium and transition into pupae that reside in the growing medium until they emerge as adults. Like other thrips species, *T. parvispinus* can spread throughout a greenhouse when pepper plants are spaced close together.

Damage

Thrips parvispinus larvae and adults feed on new growth, along the midrib on the leaf underside, and inside flowers. Young leaves fed upon by *T. parvispinus* larvae and/or adults may roll up and become discolored, distorted and eventually fall off plants. Feeding damage by *T. parvispinus* may resemble that of the broad

mite, *Polyphagotarsonemus latus*. Scablike tissue may develop on the fruit fed upon by *T. parvispinus* (Figure 2), which reduces the marketability of pepper fruit. There have been reports of marketable yield losses of 20% to 85%.

Management

Managing *T. parvispinus* populations in indoor pepper production systems involves scouting crops, implementing cultural strategies and applying insecticides. *Thrips parvispinus* can be introduced into greenhouses from shipments of pepper transplants received from a supplier where *T. parvispinus* is present. Therefore, scout pepper crops early and regularly (twice per week) during the crop production cycle to detect the presence of *T. parvispinus*. Shake plants over a sheet of white 8.5 x 11 in. paper attached to a clipboard to detect the presence of larvae and/or adults. Place yellow sticky cards above the pepper crop canopy to capture adults.

Cultural strategies include using clean non-infested transplants, removing infested plants and plant debris, and removing weeds from inside the greenhouse and around the greenhouse perimeter. Insecticides registered for use in indoor pepper production can be applied. However, ensure that the insecticides have been tested against *T. parvispinus* and demonstrate efficacy in managing populations below plant damaging levels. Insecticides primarily target the larvae and adults. Eggs inserted into plant tissues and pupae in the growing medium are not exposed to insecticide spray applications.

The susceptibility of *T. parvispinus* to insecticides may be associated with feeding location on plants, which may reduce exposure to insecticide spray applications. Therefore, thorough coverage of plant parts (e.g. leaves and flowers) and frequent applications are important in managing *T. parvispinus* populations below plant damaging levels. As crops grow, the canopy increases in complexity as the number of leaves and branches increases, which can affect coverage and contact of larvae and adults with insecticide spray applications. And as always, rotate insecticides with different modes of action, across generations, to delay *T. parvispinus* populations from developing resistance.

There are reports indicating that using biological control is not feasible against *T. parvispinus* because biological control agents such as predatory mites do not manage *T. parvispinus* populations below plant damaging levels. **IG**

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Scouting Resource

For further help in scouting for *Thrips parvispinus*, visit <https://mrec.ifas.ufl.edu/media/mrecifasufl.edu/iso/images/thrips-images/Thrips-Scouting-Resource.pdf> to download a PDF to print and bring with you on a clipboard into the greenhouse. You can use the white paper to shake plants over, and there's a guide for the size of various thrips types, including *T. parvispinus*. This resource comes from the University of Florida IFAS and USDA's Agricultural Research Service.