



## Tobacco Thrips: *Frankliniella fusca*



**Biology & Lifecycle:** Eggs hatch in about 6 days. Larval development requires 4 to 6 days. Pre-pupal and pupal development requires about 5 days. The adults live 3 weeks or more and they prefer to feed on flower tissues and pollen. Pollen-feeding increases fecundity. Tobacco thrips reproduce in peanuts (*Arachis hypogaeae*) where the larvae acquire *Tomato spotted wilt virus* (TSWV). Adults migrate to nearby fields of tomato and pepper and transmit the virus.

**Environmental Factors:** Tobacco thrips live year-round in Florida. Populations are greatest during the spring. A generational cycle takes 20 days or more, depending on temperature.

**Adult:** Very small ( $\frac{1}{10}$  inch), light brown to black with fringe wings and 8-segment antennae (**Figure 1**). The adults aggregate in the flowers and are sometimes found on the foliage.

**Larvae:** Minute, off-white and wingless; both larval instars aggregate in the flowers and on developing fruit.

**Host Range:** Tobacco thrips do not reproduce on peppers (*Capsicum* spp.), and reproduce very poorly on tomatoes. Other reproductive hosts in Florida include a wide range of crops, weeds, and native plant species.

**Damage:** Feeding by the adults and larvae is not known to inflict economic damage on tomato or pepper. However, tobacco thrips vector TSWV, the key disease of tomato, pepper, and other crops in northern Florida (**Figures 3 & 4**). The transmission of TSWV results in unmarketable fruit. Problems with the disease are less severe in central and southern Florida.



**Figure 1.** Tobacco thrips adult female. Photograph by: Kelly Sims.

**Figure 2.** Tobacco thrips adult male which looks similar to larvae but has wing pads. Photograph by: Lyle Buss.

**Figure 3.** Pepper plant infected with *Tomato spotted wilt virus*. Photograph by: Stuart Reitz.

### Actual Size:



### Monitoring:

**Scouting:** The total number of thrips of all species can be estimated in the field by beating individual flowers onto a white plastic board. Thrips must be placed in vials of alcohol and examined at 40X magnification using a stereoscope in order to distinguish Tobacco thrips from the other thrips species.

**Action Thresholds:** Incidence of tomato spotted wilt exceeds 5% in the field

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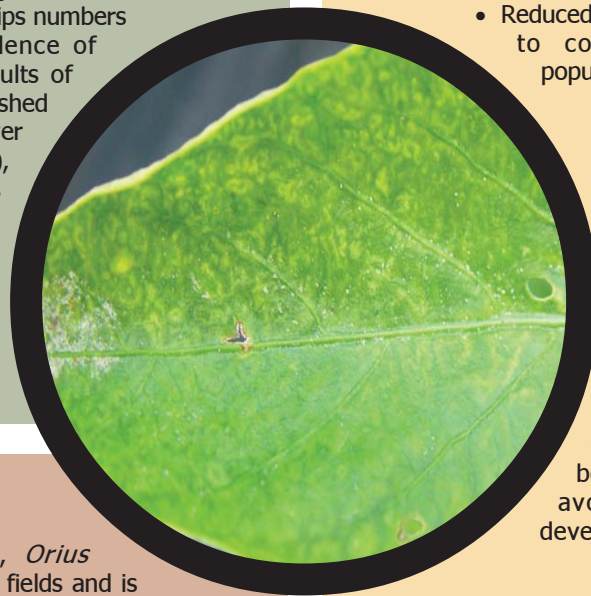


### CULTURAL CONTROLS:

**Ultraviolet-Reflective Mulch:** UV-reflective mulch reduces the influx of thrips adults into production fields. This is the most effective tactic to control primary spread of TSWV (i.e. thrips acquire the virus when developing on plant hosts outside the field).

**Resistant Cultivars:** Cultivars resistant to TSWV are available for tomatoes and peppers.

**Monitor:** Frequent monitoring of once or twice weekly is needed to assess thrips numbers and to determine the incidence of tomato spotted wilt. The adults of tobacco thrips can be distinguished from the adults of Florida flower thrips (*Frankliniella bispinosa*), western flower thrips (*Frankliniella occidentalis*) and the eastern flower thrips (*Frankliniella tritici*) by their distinctively darker coloration.



### NATURAL ENEMIES:

- The minute pirate bug, *Orius insidiosus*, naturally invade fields and is an important predator. Management programs for pepper and tomato should be designed to conserve its populations.
- The most important natural enemy of tobacco thrips is the nematode parasite, *Thripinema fuscum*, which sterilizes the parasitized female thrips.

### CONTACT INFORMATION:

Dr. Joe Funderburk  
UF/IFAS NFREC- Quincy  
jef@ifas.ufl.edu  
850-875-7146

Dr. David Schuster  
UF/IFAS GCREC- Balm  
dschust@ifas.ufl.edu  
813-633-4124

### CHEMICAL CONTROLS:

- Spraying to control adult tobacco thrips is not economically justified.
- Insecticidal control of adult tobacco thrips does not prevent primary spread of the TSWV.
- Insecticidal control of larvae developing on plants infected with TSWV is effective in preventing spread.
- Reduced-risk insecticides should be used to conserve minute pirate bug populations in pepper.

### RESISTANCE MANAGEMENT:

- Insecticide resistance has not been documented in populations of tobacco thrips.
- Employ alternative cultural control and plant resistance tactics in IPM programs as the best option to control thrips and avoid insecticide resistance development.

**Figure 4.** Ring spots from *Tomato spotted wilt virus* infection of pepper. Photograph by: Hank Dankers.

### References:

- Sims, K., J. Funderburk and D. Boucias. 2005. Host-parasite biology of *Thripinema fuscum* (Tylenchida: Allantonematidae) and *Frankliniella fusca* (Thysanoptera: Thripidae). *Journal of Nematology* 37: 4-11.
- Funderburk, J. and J. Stavisky. 2004. Biology and economic importance of flower thrips. UF/IFAS Pub. ENY682, <http://edis.ifas.ufl.edu/IN415>.
- Momol, M.T., S.M. Olson, J.E. Funderburk, J. Stavisky and J.J. Marois. 2004. Integrated management of tomato spotted wilt on field-grown tomato. *Plant Disease* 88: 882-890.
- Reitz, S.R., E.L. Yearby, J.E. Funderburk, J. Stavisky, M.T. Momol and S.M. Olson. 2003. Integrated management tactics for *Frankliniella* thrips (Thysanoptera: Thripidae) in field-grown pepper. *Journal of Economic Entomology* 96: 1201-1214.