

INSECTS

Brian Kunkel Ornamental IPM Specialist

SPRING temperatures are still really cool; therefore, I'll present some information on a common pest in greenhouses – WESTERN FLOWER THRIPS. This is Delaware's most common thrips species and they feed on many different species.

Adult thrips are small (1 – 2 mm) and may be yellowish, brown or black depending on the species. Adults have two pairs of wings fringed with fine hairs, held parallel along their back when at rest. Thrips feed by piercing the plant with rasping/sucking mouthparts that suck out plant cell contents. Feeding damage may deform flowers, leaves or shoots. Silvery streaking and flecking occurs on foliage from feeding. Immatures and adults frequently feed in tight, hidden locations or in flowers. Immature stages of thrips may be white, yellow or brown and do not have wings. Thrips development is related to temperatures and humidity. Western flower thrips feed on developing flowers prior to opening, which may cause flower buds to abort or cause flower deformation. This thrips vectors the impatiens necrotic spot virus (INSV) and tomato spotted wilt virus (TSWV) tospoviruses two of the most destructive viruses found in herbaceous annuals and perennials. There are no cures for tospoviruses and infected plants must be destroyed.

Blue sticky cards are more attractive to western flower thrips than yellow, but both will capture thrips (all species). Check sticky cards and replace weekly to keep abreast of thrips infestations. You can also search for thrips by tapping flowers on a white sheet of paper to dislodge the insects for counting. 'Purple Flash' ornamental pepper is grown in greenhouses, often in hanging baskets, as a banker plant for minute pirate bugs. The pepper produces pollen for minute pirate bugs to eat when thrips populations are low. Other biological control options include: predatory mites (*Hypoaspis miles, Amblyseius cucumeris, A. swirskii* and *A. degenerans*), lacewings, entomopathogenic nematodes (*Steinernema feltiae*) and entomopathogenic fungi

DISEASES

(Continued)

Nancy Gregory Plant Diagnostician

CLEANING TOOLS in the spring is good sanitation, along with cleaning potting surfaces and pots. Use new potting soil if possible. Used soil may be composted if no soil-borne pathogens were present, but it is better to start new containers using fresh potting mix. Potting mix is usually pasteurized, but not sterilized, as there are beneficial microbes in the soil microflora. Sanitation products are listed in the UD fact sheet:

http://extension.udel.edu/factsheets/sanitizing-productsgreenhouse/. (Continued)

UNIVERSITY OF DELAWARE

What's Hot!

Branches were bent and broken in the snow last week. Prune to remove, don't pull.

Visit these two blogs for up-to-date info: The Hot Topics in Plant Health blog by Nancy Gregory

(http://extension.udel.edu/ag/hot-topicsplant-disease/) highlights new or seasonal plant health and pest topics. The Landscape and Horticulture blog of Sue Barton (http://sites.udel.edu/suebarton/) highlights educational programs and sustainable landscape resources.

This is the last issue we will mail to all 2017 subscribers. If you haven't resubscribed, please visit this URL

http://www.udel.edu/ornamentals-hotline and subscribe, so you don't get dropped from the list.



Western flower thrips. Photo credit: P. Kunkel and N. Gregory

more

on pests & practices covered in this newsletter, call your County Extension Office

Helpful numbers to know:	
Garden Line	831-8862
(for home gardeners only)	
New Castle County Extension	831-2506
Kent County Extension	730-4000
Sussex County Extension	856-7303
View more pictures at http://ext edu/ornamentals/	ension.udel.

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Diseases (Continued)

AS OF March 27, 2018

VEGETABLES such as tomato are susceptible to plant diseases such as fungal and bacterial leaf spots, wilts, and viruses. Seed catalog listings and packets will indicate cultivars with resistance or tolerance, which can be very helpful in garden situations where pesticide sprays are not often used. Look for VFN (Verticillium, Fusarium, Nematode) or other codes. Tomato cultivars with resistance to early blight include 'Sun Gold', Matt's Wild Cherry', 'Juliet', 'Plum Regal', 'Mountain Fresh', and 'Iron Lady'. Pepper cultivars that may be resistant to bacterial spot include 'Allegiance', 'Hunter', 'Islamorada', 'Naples', 'Regiment', and 'Vanguard'. Hot water seed treatments or a wash with a 10% bleach solution may also help reduce bacterial disease in tomato and pepper. Cleaning is especially important if you save seed from heirloom cultivars. There are some cultivars of cucumber (Eureka, Max Pack, and SV4719CS) and muskmelon (Edisto47) that are resistant to the downy mildew pathogen, severe each year in our area. Some resistance is also available to powdery mildew in cucurbits. See the UD fact sheet for more information on diseases that affect home garden tomatoes: http://extension.udel.edu/factsheets/leaf-spotdiseases-in-garden-tomatoes/

Insects (Continued)

- (Beauveria bassiana, Metarhizium
- anisopliae). The predatory mite, A. cucumeris paired with minute pirate bugs provide fairly effective control. If interested in banker plants, contact me at bakunkel@udel.edu. Control with insecticides is difficult because of the feeding, oviposition and pupation locations these insects use. Screening (exclusion) and sanitation are important for managing thrips populations. Chemical control options include: Pedestal, Azatin, Conserve, Pylon,
- Overture, neonicotinoids, pyrethroids and others.

Editor: Susan Barton Extension Horticulturist



Early blight (Alternaria solani) on tomato. Photo credit: N. Gregory



Swarthmore College (Delaware County, PA) = 0 ('17 = 35)

rischer Greenhouse (New Castle County) = 0 ('17 = 46.5)

Research & Educ. Center, Georgetown Research & Educ. Center, Georg (Sussex County) = 0 ('17 = 65)

Swarthmore College

Fischer Greenhouse



Bacterial spot on tomato fruit with secondary Alternaria. Photo credit: N. Gregory



Thrips damage. Photo credit: B. Kunkel