

K-STATE

Research and Extension

Butler County

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The Grapevine

Fall Webworms

While Fall webworms are present in the state throughout the entire growing season, we typically don't notice them till late summer into fall, when their nests become larger and easier to spot. These caterpillars are pale-green to yellow to nearly white with black spots and long white hairs. They are often confused with the eastern tent caterpillars in our area; however, their webs can distinguish the two. The fall webworm has a loosely woven web encasing entire branches, and the caterpillars feed inside the web. In contrast, the eastern tent caterpillar has a densely woven web in the crotches or forks of tree branches, and they feed outside the nest, only coming inside at night or in rainy weather.

The fall webworm feeds on many trees, including birch, crabapple, maples, hickory, pecan, mulberry, and walnut. Because these caterpillars only feed inside the nest, they are difficult to control with chemicals unless you have a high-powered spray that can penetrate the web. Because larvae remain in the nests, removing web masses should eliminate most larvae. Fingers are efficient tools for stripping web masses from branches, but a pole with a nail driven through the end or one with a bristled toilet brush attached can be used to avoid touching the nest. Once the webbing around the nest has been torn open, local birds can help remove the pests for you, or you could spray. You can also cut the branch with the web off and dispose of it, rather than use chemicals for control. Unless there are multiple nests on the tree or the tree is already stressed by other pests, most mature trees can tolerate a few fall webworm nests without any damage, especially in the fall.



Harvesting Onions and Garlic

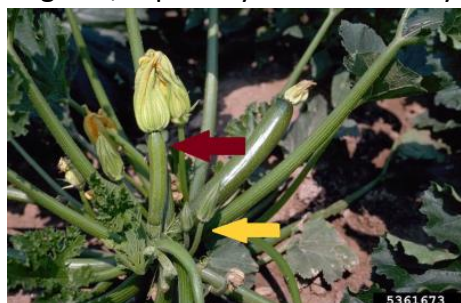
If you planted onions or garlic in your garden, the time is upon us to start harvesting those crops. Garlic typically matures sometime in early June and, depending on the species, can be harvested till mid-July. Your garlic is ready to harvest when approximately five green leaves are left on the plant, and the rest are turning brown. It's best to stop watering garlic a couple of weeks before you plan to harvest, so it's easier to pull. Onions are ready to pull when over half of the tops of your plants have fallen over. This happens when the bulbs have reached their mature full size. Both plants



should be allowed to dry out of direct sunlight for several weeks before being stored for the year. You can braid the stalks of garlic together to hang them for storage or cut the stalks and roots off (1" for garlic, ½" for onions) above the bulb and store in a cool, dry location. Both should be stored at temperatures below 40 degrees for the longest shelf life in an area with low humidity to prevent sprouting. Garlic can be stored for 9 months or more, depending on the variety, while onions will last a shorter period of time, depending on the variety.

Fruit Set on Vegetables

If we have nighttime temperatures above 75 and daytime temperatures above 85, tomatoes and other vegetables are unlikely to set any fruit, even though they are blooming like crazy. The temperature causes the tomato plant to become stressed. This also changes the flowers and makes it harder for them to become pollinated. But don't worry, once temperatures cool down, the tomatoes will return to producing enough fruit to feed a small village. If your plants weren't blooming even before the heat but were developing into big bushy plants, you might have over-fertilized them this spring. Overfertilization leads to vigorous plant growth but fewer blooms or fruit set. On tomatoes, try not to fertilize with nitrogen until the plant has set its first fruit round to avoid excessive vegetative growth. Green beans will also drop flowers if hot temperatures are over 95 degrees, especially if the soil is dry.



Vining crops such as squash, cucumbers, watermelon, and pumpkins can have different issues. They have male and female flowers on the same plant. Typically, the early blooms are all male flowers, meaning there won't be any fruit from them; however, after a few weeks, the plant finds a balance of male and female flowers. It's easy to distinguish the male from the female flowers as the female flowers have a tiny fruit behind the blossom (in the photo, the burgundy arrow (top) is the female flower, the yellow arrow (bottom) is the male). The heat can also change which types

of flowers are created with higher temperatures (90 degrees during the day and 70 degrees or warmer at night), favoring having more male flowers instead of female flowers.

If you have male and female flowers but still aren't getting fruit set, make sure you see pollinators visiting the flowers. Tomatoes are typically pollinated by wind and don't necessarily need pollinators, but vining crops do. If you don't see many pollinators visiting your garden, use a paintbrush to transfer pollen from male to female flowers. You need more pollinators if you only get fruit from the pollinated flowers. Like the flowers, bees don't like it hot and will start to decrease their pollination when temperatures get above 90 degrees. Once temperatures cool down, the bees and the flowers will return to normal. Till then, we have to water as needed and wait for the temperatures to drop again.

Question of the Week- Tomato Spotted Wilt Virus



This week's question is one I have found once before when I worked in North Dakota. While uncommon, this virus can cause significant crop losses for commercial growers and a complete crop failure for homeowners. Tomato Spotted Wilt Virus (TSWV) is one virus worth knowing. With the number of pests and pathogens posing challenges to crop production, the threat of viruses can easily take the back burner. However, viruses can cause irreversible damage and significant crop loss, especially when not identified early and contained.

TSWV is a well-known virus in other regions of the country. In the state of Georgia, for example, it is estimated to cause approximately \$9 million in losses in tomato and pepper crops each year, and growers on the West Coast have

reported losing up to 50% of tomato plants to the virus. TSWV is often introduced on asymptomatic plants and then spreads to vegetable seedlings or other plants started by seed.

One of the primary paths of introduction is through vegetatively propagated ornamental plant material. Still, many weed species that grow under benches and outside high tunnels and greenhouses can also introduce the virus. These include (but are not limited to) dandelion, lambs' quarters, purslane, shepherd's purse, and white clover. TSWV has an extensive host range of many hundreds of plant species, including chrysanthemums, petunias, impatiens, nasturtium, begonia, tomato, pepper, eggplant, potato, lettuce, spinach, cucurbits, beans, and more.



Symptoms of the virus differ substantially depending on the plant species infected. Still, they can include stunting, necrotic spots on the leaves and stems, necrotic spots that progress into the death of petioles and growing tips, wilting or cupping of leaves, leaf discoloration (including a bronzing on the top of leaves), concentric rings and spots on leaves and fruit, and petals with spots and/or line patterns. Some symptoms can mimic those caused by bacterial and fungal pathogens or chemical injury. The photo above shows some possible symptoms on the fruit of the tomato.



Thrips spread TSWV. While multiple species can carry and even spread the virus, the Western Flower Thrips (*Frankliniella occidentalis*) is considered the most (and perhaps only) efficient transmitter. The virus is persistent in the thrips, meaning it remains in the pest and can be spread by the thrips for its entire life. However, females do not pass TSWV onto their progeny, so each generation of thrips must reacquire the virus from infected plant material.

To prevent and control the spread of TSWV, a mixture of physical, cultural, and chemical control measures may need to be taken. If infected material is present, TSWV cannot spread in plant populations if thrips are absent. Thus, the most obvious way to prevent the virus is to keep the thrips population under control. Control weeds in and around greenhouses and fields. Weeds can harbor and introduce TSWV

(especially after an outbreak). They can also serve as a habitat for thrips. Purchase tolerant or resistant varieties when possible. For tomatoes and peppers, seek out varieties with the Sw-5b and Tsw genes, respectively. Resistance should be indicated in seed catalogues. Once a plant has been infected, there is no cure, and it needs to be removed to prevent infection of the entire garden.

Insect of the Week- Western Flower Thrips

This week, we are talking about Western Flower Thrips (*Frankliniella occidentalis*), partly due to the virus that was our question of the week. Thrips are a group of tiny, elongated, and fringe-winged insects that are commonly found in flowers of most plants. Many feed on plant tissues as well as pollen. They feed by a “punch and suck” method, whereby they push their mouth cone into plant tissue or pollen, and then suck the contents through their straw-like stylets. A few species of thrips are now worldwide pests, one of which is the western flower thrips (*Frankliniella occidentalis*). In this region, western flower thrips damage apples and many horticultural and field crops, such as tomatoes and cotton. Some species of thrips can be pests of houseplants as well.



Adult western flower thrips can be distinguished from other insects by their fringed wings, tubular body shape, and color. Females are about 1/25 of an inch long and have many color forms. These vary from pale yellow thorax and abdomen to yellow thorax and dark abdomen to very dark color throughout their body. In higher elevations, females are black. Wings are fringed on the margins and are clear to yellow. Males are smaller than females (about 2/3 the female length) and are light yellow throughout their bodies. Wings are clear and yellow like those of the female. Larvae are about 1/50 inch long and 1/75 inch wide, translucent white to yellow, and tubular. They can be mistaken for leafhoppers and Campylomma nymphs, which are about the same size and color. However, thrips larvae are more elongated and worm-like.



Controlling the Western Flower Thrips is particularly challenging because of its biological characteristics. Eggs are deposited directly into an infected plant, making them inaccessible. After this, they undergo two larval stages, where larvae generally remain in the flower bud or foliage, where they can be well-protected from contact insecticides and many natural enemies. After the second larval stage, the pest moves to the soil and pupates. While in the soil, they do not feed and are again protected from insecticides aimed at the foliage (weed or crop). When the adults emerge with wings, they feed primarily on the flowers and terminal buds. Pesticide resistance is a documented problem with controlling trips chemically. The first step is to monitor for thrips using

yellow or blue sticky cards placed at 1-3/100 ft² density. Consider using a trap crop for thrips and an indicator plant for TSWV. The trap crop, such as fava bean and petunia, is attractive to thrips and will alert you to their presence. Petunia cultivars ‘Calypso’, ‘Summer Madness’, and ‘Super Blue Magic’ have been reported to be particularly attractive. Indicator plants may show TSWV symptoms earlier than some other susceptible crops, letting you know there is an outbreak of the virus. Both petunia and gloxinia have been reported to develop lesions 2-3 days after feeding by infected thrips. Adding non-adhesive yellow boards behind petunia (at plant height) may increase their attractiveness to thrips. Apply an insecticide when there is a sudden increase in the thrip population on sticky cards, and > five thrips/trap/week are present. Do not wait until numbers are high. Continue insecticide applications at 5-day intervals until numbers decline to less than 5 per trap. Look for chemicals with the active ingredients of bifenthrin, cyfluthrin, horticultural oils, acephate, or Spinosad. I would recommend rotating chemicals to reduce the chances that the insects will become resistant to the products that you are using. Chemical resistance has been documented in several populations of thrips across the country.

Video of the Week



Growing to New Heights with Vertical Gardening

Make the most of your garden by growing up, instead of out. Create vertical gardens to get your garden off the ground, provide more plant space, and expand your gardening area. Learn which fruits, vegetables, and flowers will grow best in a vertical garden and how to get started. Watch the video on the [K-State Research and Extension Garden Hour Website](https://www.k-state.edu/research-and-extension/garden-hour/).



Upcoming Events

Garden Hour Webinars:

August 6th- Innovations in Horticultural Research at Kansas State University

September 3rd- Shrubs that Thrive in Kansas

October 1st-Keys to Successful Community Garden Spaces

Upcoming Events:

July 9th at 12:15 pm- Troubleshooting Issues in the Garden Lunch and Learn at Andover Library

July 9th at 5:30 pm- Fall Gardening at the Benton Community Building

July 13th from 10-2 pm- Produce Fest at the El Dorado Farmer's Market

July 16th at 6 pm- Annual and Perennial Plants for Kansas at the Bradford Memorial Library

Grilled Corn and Tomato Salad

Straight from the garden, this Grilled Corn and Tomato Salad makes a great side dish or can be served as a dip with your favorite chips or crackers. The zesty lime dressing offers a fun punch of summer that will have you making this salad repeatedly.



Ingredients

- 4 ears of sweet corn
- 1 garlic clove, minced
- 1 jalapeño seeds and ribs removed, minced
- Zest and juice of 1 lime
- ¼ cup canola oil
- 2 ripe avocados halved, pitted, peeled, and diced
- 1 cup cherry tomatoes, quartered
- 6 scallions, thinly sliced
- ½ cup finely chopped fresh cilantro leaves
- Salt and pepper to taste

Directions

1. Preheat the grill to medium heat.
2. Grill corn until tender, about 20 minutes. Let cool and remove kernels.
3. Combine the garlic, jalapeño, lime zest, lime juice, and oil in a large bowl.
4. Whisk to combine.
5. Add the corn, avocado, tomatoes, scallions, and cilantro and toss gently to combine.
6. Season with salt and pepper to taste.

Recipe Source: [North Dakota State University](#)



LUNCH & LEARN

Bring your lunch and join Horticulture Agent, Calla Edwards, over the lunch hour during our monthly Lunch & Learn Program. This will be held over the lunch hour and will cover a variety of horticulture topics.

July 9th
12:15-12:45 p.m.

Andover Public Library
1511 E. Central Ave.
Andover, KS

**July Topic: Troubleshooting
Issues in the Garden**

Learn how to identify and treat common vegetable garden issues.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service
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