



NEWSPAPER ARTICLES

Growing VFN Resistant Tomatoes (April 27, 2024)

by Pam Wallace, Tulare/Kings Counties Master Gardener

One of the joys of gardening in the San Joaquin Valley is the variety of vegetables you can grow at home. Not only can you control the amount of fertilizer and pesticide in your veggies, but you can also pick your favorite varieties. There's not much that equals the taste of a vine-ripe tomato, still warm from the sun. Even novice gardeners or those with limited space can enjoy growing their own tomatoes.

Tomatoes do very well in our area; however, there are a number of disorders, diseases, or pesky pests that can affect how many fresh tomatoes you actually get to enjoy. Often, the best way to reduce the damage caused by these problems is to read the plant labels. Your plants should have a label listing the variety, size, and color of the tomato. Next to the variety name, you should see a group of letters listing the resistance to a disease or pest.



Fusarium (F) and Verticillium (V) wilt are common diseases that can destroy a whole tomato crop. Nematodes (N) are microscopic worms that can seriously curtail the vigor and production of a plant. VFN on a plant label means the plants are resistant to Verticillium, fusarium, and nematodes.



Fusarium Wilt

Fusarium is a soilborne fungus that is found throughout the United States, but especially in warm areas such as the Central Valley. According to UCANR, Fusarium wilt infections are favored by warm soil temperatures (80° F) and low soil moisture. The symptoms are bright yellow leaves that usually appear first on just one side or one branch of a plant. The leaf symptoms will also often appear, such as yellowing on one side of a leaf. Older leaves are affected first. The foliage yellows, wilts, then turns brown and dies.

<https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=57620>

Verticillium Wilt

The symptoms of Fusarium and Verticillium are very similar. Early symptoms of Verticillium include yellowing of older leaves and wilting of shoot tips during the day. Later, leaf margins curl upward, and leaves often drop off. Diseased plants are stunted, and any fruit that is produced is usually small. When diseased plant stems are cut open with a knife and exposed, the water-conducting tissues usually appear streaked with a dark brown or black discoloration. Verticillium is also a soilborne fungus. There is no fungicide available once plants have been infected. It is possible for the fungus to survive for many years in the soil.

https://vric.ucdavis.edu/pdf/TOMATO/tomato_verticillium-tomato.pdf



Nematodes

Nematodes are roundworms too small to see with the naked eye. Root-knot nematodes cause galls on roots that may be up to 1 inch in diameter but are usually smaller. These galls interfere with the flow of water and nutrients to the plant. Infected plants appear less vigorous than healthy plants; leaves may be yellow and wilt in hot weather. Fertilizing will not help alleviate these symptoms. Root-knot nematode galls are true swellings and can't be rubbed off the roots, as can the beneficial, nitrogen-fixing nodules on the roots

of legumes. Infested plants grow more slowly and produce fewer and smaller leaves and fruits. It is believed the root-knot nematode survives from season to season primarily as eggs in the soil.

<https://ipm.ucanr.edu/agriculture/tomato/root-knot-nematodes/>

Control and Prevention

Fusarium and Verticillium are both fungal diseases that live in the soil for an indeterminate length of time. Nematodes are small parasitic worms that also live in the soil. There are no chemicals available to control any of these three problems. The best bet is to select tomato varieties that are resistant to them. Although even resistant tomato varieties can still exhibit some symptoms, they will usually maintain their yield. An additional benefit of growing a resistant variety is that the pest levels in the soil should decline, resulting in a better crop the following season.

Try to provide optimal conditions for plant growth, including sufficient water and soil amendments to make plants less susceptible to infestations. Crop rotation is perhaps one of the most effective measures in controlling tomato pests and diseases. Avoid planting tomatoes in the same area year after year. Growing other crops besides tomatoes during the off-season can help reduce soil pests by

withholding their food source. Another method is to let your tomato area go fallow. Fallowing is the practice of leaving the soil bare for a period of time. Fallowing for one year will lower root-knot nematode populations. Fallowing for two years would allow for even more nematode reduction. When fallowing, keep the soil moist and control weeds on which nematodes and diseases can survive.

More Information

There can be other letters besides VFN listed on the plant labels. For a complete list, along with details on resistant varieties, climate zones, planting and staking, and descriptions of other abiotic problems of tomatoes, download UCANR Publication #8159, Growing Tomatoes in the Home Garden: <https://anrcatalog.ucanr.edu/pdf/8159.pdf>

A note of caution: While the disease identification codes should be marked on the plant label following the tomato's cultivar name, it's been my personal experience lately that plant labels often do not list if a tomato variety is disease or pest-resistant. In that case, a thorough internet search can turn up the details you need. Besides the publication listed above, here are two more helpful sites:

<https://ucanr.edu/sites/ucmgnevada/files/183442.pdf>

UC Davis Recommended Varieties and Their Disease Resistance includes a list of common tomato problems with descriptions of symptoms and causes.

<https://www.vegetables.cornell.edu/pest-management/disease-factsheets/disease-resistant-vegetable-varieties/disease-resistant-tomato-varieties/>

Disease-resistant tomato varieties, by Cornell College of Agriculture and Life Sciences

The Tulare-Kings Counties Master Gardeners will answer your questions in person:

Visalia Farmer's Market, 1st & 3rd Saturdays, 8 - 11 am, Tulare Co. Courthouse North parking lot

Sat., April 27 - Main St. Jamboree @ Mooney Grove, 9:30 am - 3:30 pm

April 27 - Kids Day Activities, Longfield Center, 560 S Douty St, Hanford - 9 am - 2 pm

Sat., May 4 - Luis Nursery Plant Clinic, Caldwell & Mariposa, Visalia - 10 am - 2 pm

Questions? Call the Master Gardeners:

Tulare County: (559) 684-3325, Tues & Thurs, 9:30-11:30;

Kings County: (559) 852-2736, Thursday Only, 9:30-11:30 am

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