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Tomato Disease Update – 2022

I have been hearing about many maladies visiting both commercial and garden grown tomatoes for 2022. Many have complained of having ‘blight’ and that it is particularly bad this year. Technically, blight is a symptom not a specific disease, and from what I have seen and diagnosed in 2022, there are multiple pathogens that are unwelcome visitors to the Commonwealth. Below, I will review the most common tomato diseases and disorders in Virginia. While pictures and descriptions can be informative, I advise you to contact your Virginia Cooperative Extension Agent (<https://ext.vt.edu/offices.html>) to ensure proper identification and subsequently determine proper control measures. More information on disease control can be found within the mid-Atlantic Commercial Vegetable Production Guide (https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/456/456-420/SPES-391.pdf) or the Home Grounds and Animals Pest Management Guide (https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/456/456-018/ENTO-462.pdf). More pictures can be found at www.facebook.com/vtvegpp. All these resources will provide more information on cultural and chemical practices available to growers and gardeners.

Late Blight

Late blight is a historic disease that conjures up thoughts of the Irish Potato Famine. The disease cannot overwinter in Virginia (fortunately) and has to arrive on weather systems or other agricultural supplies (ie. transplants, debris, fruit, etc.). Late blight is caused by the oomycete (fungal-like) pathogen *Phytophthora infestans*. Plant pathologists in the United States track this pathogen and current reports can be viewed at www.usablight.org. The website also contains information about the historic disease.

Fortunately, I have not seen this particular disease in Virginia to date in 2022. So far, it has only been reported in Florida. Below is a picture of late blight on tomato from 2009. More information can also be found at: https://www.pubs.ext.vt.edu/ANR/ANR-6/ANR-6.html?fbclid=IwAR0nRp3ZQsTxnN0xue-l7veS6LUAX_EOa40ilAkm-kX0Nz-jrEsizldtUpw



Early Blight

Early blight is caused by fungi in the *Alternaria* genus. Although it shares the 'blight' part of name, it differs in biology and control from late blight. The disease is endemic to the Commonwealth and is favored by warm and humid weather. The fungus can overwinter on debris in soil or other contaminated agricultural supplies (such as dirty stakes). Characteristic to early blight are lesions that are shaped like targets (concentric rings). When particularly severe, stem cankers may appear sharing the bullseye type patterns seen on foliar lesions.



Septoria Leaf spot

This disease is very common in Virginia and is caused by the fungus *Septoria lycopersici*. Unlike concentric rings like early blight, these lesions are darker in color and, in latter stages, may showcase a tan center. Severe infections will result in the leaves yellowing and defoliation. The disease is also favored by warm temperatures and high humidity. Septoria leaf spot spreads through splashing spores from an infected location to a new one. Initial infections generally result from soil splashing from rainfall. Thus, mulching around plants and limiting foliage moisture may assist in slowing disease. This fungus can also overwinter in Virginia in plant debris within soil.



Bacterial Spot/Speck

Bacterial spot is caused by *Xanthomonas* sp. and speck by *Pseudomonas* sp. However, I will discuss them together since they are practically indistinguishable in the field with biology and control methods being similar. Many bacterial infections start in the greenhouse or transplant rearing facility. However, the pathogens have been found to overwinter in plant debris in soil and on items such as tomato stakes and seeds. The disease is favored by, once again, high humidity. Lesions generally are circular and have yellow halos around them. In severe cases tomato stems and fruit can be infected. The disease usually starts from the base of the plant and works its way upwards. Reducing canopy moisture is critical to slowing down these two bacterial diseases. Using disease free transplants and seeds is also crucial. Avoid working (staking, stringing, etc.) the plants when leaves are wet as this will increase the likelihood of disease spread.



Tomato Spotted Wilt Virus

Tomato Spotted Wilt Virus (TSWV) is a viral pathogen vectored by thrips. Within this list, no tomato disease can present such an array of symptoms. Plants can be stunted, leaves crinkled, fruit can be misshapen or have brown lesions. In severe cases, plants can die. TSWV is worse in years where the previous winter was milder and most importantly, when drier conditions favor thrips. The most effective control of TSWV is through resistance cultivars, although management of thrips populations is also important. Several other vegetable crops can be infected by TSWV.



Southern Blight

Southern blight is caused by a soilborne fungal pathogen *Athelia rolfsii* (formerly known as *Sclerotium rolfsii*). Virginia is a transitional state for this devastating pathogen, with it much more prevalent in the Tidewater, Eastern Shore and Southside VA regions. The pathogen can cause complete plant collapse within days, particularly under warm and humid conditions. White fungal growth and characteristic sclerotia (brown and round) can be found during periods of favorable conditions (see pictures below). More information on this pathogen can be found at: https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/spes/spes-325/SPES-325.pdf



Bacterial Wilt

Bacterial wilt is caused by a soilborne pathogen, *Ralstonia solanacearum*. This is another pathogen that is more prevalent in the southern and eastern areas of the state. The pathogen causes plant collapse, seemingly overnight, where plants droop and leaves go from green to brown. This generally occurs in clustered distributions and is a result of the bacterium clogging vascular systems and limiting water uptake. Thus, bacterial wilt resembles water stress in tomato. The pathogen can survive in soils for several years.



Blossom End Rot

Though technically not a disease, blossom end rot (BER) is the most common disorder in tomato in Virginia. Information on BER is listed below along with a picture. It is common for BER-compromised fruit to be infected by secondary pathogens.

BLOSSOM END ROT

Blossom end rot happens when your plant can't transport enough calcium from the soil to the fruit. This is *probably* because of inadequate watering.*

Calcium is taken up constantly by plant roots as a dissolved nutrient and travels first to the growing points- new leaves and shoots.

Fruits may experience a shortage of calcium if water becomes less available to plant roots (drought).

Will adding egg shells to your soil help with blossom end rot? No*, you can have plenty of calcium in your soil and still have blossom end rot!

*It is possible that your soil's calcium levels are inadequate or something else is wrong. Please reach out to your local Extension office for information on **soil testing!**

FOR MORE INFORMATION:
https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-418/426-418_pdf.pdf
MASTERGARDENER.EXT.VT.EDU

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Herbicide Damage

It is also very common to see herbicide damage on tomato. While there are various herbicides that produce a wide range of symptoms on tomato, the most common herbicide damage is from 2,4-D. This herbicide is a growth regulating herbicide and has a propensity to drift to non-target locations. As in the below picture, leaves show signature distorted stems and leaves.



I hope that will help, however, there are many other diseases of tomato that are not discussed here that occur in Virginia regularly. Please remember to

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