

Diseases continue to wreak havoc

Pamela Corle-Bennett
Published July 22, 2017
Ohio State University Extension - Clark County

Last week I wrote about tomato diseases and then went to Portland to a conference. I came home to almost completely defoliated tomatoes!

I knew this was going to be a rough year for tomatoes but I was hoping for a bit of a break.

All of the wet weather coupled with heavy dew at night allowed the diseases to progress rapidly.

What is interesting is that I have several varieties of tomatoes and some of them fared better than others.

This is true in the disease world - some species or varieties of plants are more susceptible to diseases than others.

I have talked about the disease triangle in the past and can't emphasize enough that it's a great tool when it comes to understanding diseases and how they affect plants.

There are three components to a disease triangle. The first component is the host plant.

The second component is the pathogen and the third leg of the triangle is the environmental conditions.

Let's look at the example of black spot on roses. If you are a serious rose grower you are very familiar with this disease. If you have some of the new hedge or shrub roses, you are also likely familiar with this disease.



Black spot symptoms on rose leaves.

The host plant is the rose. The pathogen that causes blackspot is *Dilocarpon rosae*. The environmental conditions that complete the triangle and allow infection to occur are moisture on the leaf surface for an extended period of time. This pathogen tolerates a wide range of temperatures which is why we see black spot symptoms develop all season.

We try to manipulate one or all of the legs of this black spot triangle to prevent the occurrence of black spot.

We can plant roses that are resistant to the disease. In the tomato problem mentioned above, certain varieties are more susceptible to septoria on tomatoes than others.

We can manipulate the pathogen by using preventive fungicides. Serious rose growers use a regular fungicide spray program to protect the leaf surface from infection.



Tomatoes defoliated by septoria leaf blight.

Finally we can try to manipulate the environment. Notice I said try.

First of all the pathogen is present and can be found in overwintered debris, old canes, or fallen leaves that were infected previously. Therefore, cleaning up the area around the roses will help reduce the problem but won't likely eliminate it completely.

We can also plant roses in a sunny location so that the length of time dew is on the leaf surface may be decreased.

If we have to water, use drip irrigation and prevent water from getting on the leaf surface.

The problem is that normal weather conditions in Ohio are perfect for black spot to develop and we see it just about every year.

Some years are worse than others, just like the tomato leaf spot diseases.

Understanding the disease triangle really helps me to understand and attempt to manage diseases. I encourage you to read more about it and utilize it in your garden.