Rose Rosette Disease

The appearance of rose rosette disease (RDD) on Knock Out roses is relatively recent. Roses in this group have been heavily used in landscapes because of their relative adaptability to a wider range of landscape conditions. However, in recent years, RDD has become a serious issue in Ohio landscapes, particularly in mass plantings.

RDD was first reported in 1941 on multiflora rose in Manitoba, Canada, Wyoming, northeastern California, and Nebraska; however, it took many years for scientific sleuthing to reveal the exact cause of the disease and the mechanism for disease transmission. RDD is transmitted by an eriophyid mite, specifically the Rose Leaf Curl Mite (*Phyllocoptes fructiplilus*) that inhabits the shoot tips and leaf petal bases of roses.

Research published in 2011 by scientists from the University of Arkansas and Oregon State University showed the true causal agent for RDD to be a new negative-strand RNA virus that has been tagged, Rose Rosette Virus (RRV). A virus once again "fits" because virus particles are not limited to phloem and may be readily available within a range of plant tissue to hitch-hike on eriophyid mites. Currently, the disease is diagnosed based on observed symptoms since there is no laboratory method to detect the virus; however now that the virus has been identified, diagnostic tests may be developed.

The mite alone causes little damage; however, the virus produces a range of symptoms that first become evident in the spring and intensify as the season progresses. Infected plants produce succulent bright red shoots covered in stunted, twisted stems, and leaves. The leaves may also appear red, chlorotic, or a combination of both symptoms and the shoots may be covered by an abnormally high number of thorns. The twisted growth may be mistaken for damage caused by a plant growth-regulator herbicide such as 2, 4-D.

The disease is lethal to multiflora rose and it has become clear in the intervening years that RDD also infects virtually all cultivated roses. Once plants become infected, all parts of the plants are infectious. Pruners used on infected plants can spread the pathogen to non-infected plants. There are no pesticides available that will control the disease, so management focuses on removing the pathogen by removing infected plants. Entire plants, including the roots, should be removed and destroyed; while the pathogen does not survive in the soil, it will survive in roots.