Participants at this week's Southwest Ohio BYGLive! Diagnostic Walk-About also observed multiflora rose being hammered by rose rosette disease (RRD) which is not a bad thing. However, the group discussed the appearance of RRD in recent years on Knockout roses. Roses in this group have been heavily used in landscapes because of their relative adaptability to a wider range of landscape conditions compared to their hybrid-tea cousins. Unfortunately, RRD has become a serious issue in Ohio landscapes, particularly in mass plantings.

RRD was first reported in 1941 on multiflora rose Manitoba, Canada, Wyoming, northeastern California, and Nebraska. It took many years for scientific sleuthing to reveal the exact cause of the disease and the mechanism for disease transmission. Indeed, until very recently, the pathogen was thought to be a phytoplasma; these are prokaryotic (no nucleus) cell that lack cross walls. However, phytoplasmas did not "fit" with the discovery that RRD is transmitted by an eriophyid mite, specifically the
ROSE LEAF CURL MITE (*Phyllocopites fructiplilus*) that inhabits the shoot tips and leaf petal bases of roses. Phytoplasmas inhabit plant phloem and eriophyid mites do not have the phloem-piercing mouthparts of leafhoppers or psyllids; two common vectors of phytoplasma diseases.

Research published in 2011 by scientists from the University of Arkansas and Oregon State University showed the true causal agent for RRD to be a new negative-strand RNA virus that has been tagged, ROSE ROSETTE VIRUS (RRV). Readers may recognize the name because "RRV" was used before on the road to discovering the true culprit when it was believed a virus was involved prior to the phytoplasma side-trip. 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 was originally thought that the pathogen was specific to this non-native noxious weed. However, it has become clear in the intervening years that RRD 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 pathogen and applications targeting the eriophyid mite have produced largely disappointing results, so management should focus 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. If possible, rose growers should focus their attention on eliminating nearby multiflora rose plants since the plants can serve as reservoirs for this disease.

For More Information:
Virginia Tech Fact Sheet [4]