## Disease-Resistant Knockout Rose is Susceptible to Rose Rosette Disease

Remember when Knockout rose was the answer to our rose disease problems? Suddenly, they were everywhere. I, too, am guilty of mass plantings in both residential and commercial settings. Then came rose rosette disease; Knockout was susceptible.

During the past 10 years or so, rose growers have struggled with this mysterious affliction. The disease was first described in the 1930's but it began to spread through our area in the 1980's. With the introduction of the Knockout series, roses became popular again. Consequently, with more roses came more extensive disease spread.

Rose rosette disease was first diagnosed on Knockout rose in Kentucky in 2009. Since then, the UK Plant Disease Diagnostic Lab has witnessed a rapid increase in incidence, especially with the disease-resistant Knockout. This year seems consistent with that trend.

**Symptoms:** Disease symptoms vary with rose cultivar, but combinations of all or some of the most distinct symptoms are used for diagnosis.

- Stem bunching or clustering, witch's broom
- Elongated and/or thickened canes
- Bright red leaves and stems
- Excessive thorniness, small red or brown thorns that are soft and pliable
- Distorted or aborted flowers
- Under-developed or narrow leaves and/ or distorted canes
- Dead or dying canes, yellow or brown foliage, dwarfing or stunting

**Causal Agent**: Causal agent of rose rosette disease is a virus classified in the newly described genus *Emaravirus*. It is systemic and occupies all tissue within a plant, although only some plant parts may be symptomatic. This pathogen is not spread by pruners or other mechanical means like some common viruses, but it is readily transferred onto rootstocks through grafts. Due to high demand of Knockout roses, mass production has led to spread of diseased roses throughout industry. We speculate that Knockout is not necessarily more susceptible to the disease, but that it is simply more prevalent than other rose cultivars.

In the landscape or garden center, disease is spread by a small mite, the rose leaf curl mite that resides in axillary buds. Mites are transported on insects or by wind currents for up to 100 yards. Moreover, mite populations can build up rapidly in greenhouses. Thus, greenhouse grown roses often have a higher risk for infection.

**Disease Management**: Viruses become systemic in plants, and there is no cure for infected plants. Prevention is the best control for rose rosette disease.

- Diseased plants must be destroyed so that neither the mite nor the virus is spread to healthy plants.
- Mite control is difficult if not impossible, and growers may risk destroying beneficial organisms with excessive insecticide or miticide use.
- Growers and homeowners should carefully inspect plants before purchase. If symptoms are present, avoid purchasing roses from that supplier. Never risk introducing diseased plants into your nursery or greenhouse.
- As aforementioned, destroy infected plants immediately and never hold them over in an attempt to cure.
- Wild multiflora roses are ideal hosts for both the mite and the virus, so consider destroying nearby wild roses as well.

Dr. Nicole Ward
University of Kentucky
Asst. Professor of Extension

Nicole Ward is an Extension Specialist for ornamentals, fruit crops, and forestry in the Department of Plant Pathology at the University of Kentucky. In addition to earning a B.S. in Horticulture Science and a PhD in Plant Pathology at Louisiana State University, Nicole owned and operated a landscape contracting business for 12 years. Join her on Facebook and Twitter or subscribe to her Blogspot for up-to-date information on diseases of ornamentals. She can be contacted at nicole.ward@uky.edu, 859.218.0720 or 859.797.3333.

Photos 1-3. Rose rosette symptoms vary with cultivar, but bright red growth and excessive thorniness are the most common symptoms (Photo N Ward).

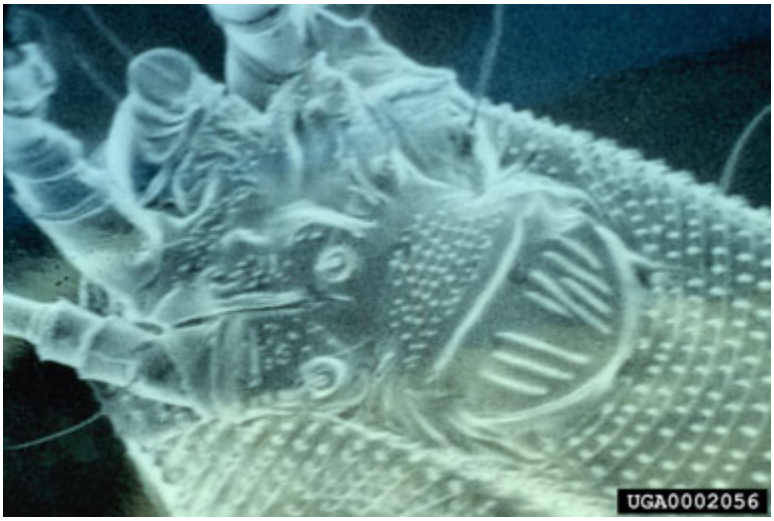


Photo 4. Rose rosette disease is spread by the rose leaf curl mite (Photo West Virginia University).