Rose Rosette Disease in Florida

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Rose Rosette Disease (RRD) is a devastating plant infection that threatens Florida’s rose (*Rosa* spp.) nursery industry as well as retail sales and landscape use. In late 2013, the disease was diagnosed on a rose sample submitted to the Florida Extension Plant Diagnostic Clinic at the UF/IFAS North Florida Research and Education Center in Quincy, FL. Researchers at the plant diagnostic clinic confirmed the presence of RRD by applying a molecular biology technique known as Reverse Transcription Polymerase Chain Reaction to detect RNA expression levels. Since then, RRD has been found in two other Florida counties. RRD is a virus vectored by a tiny eriophyid mite, *Phyllocoptes fructiphilus* Keifer, however, the mite has not yet been found in Florida. Currently, there is no cure for RRD. Infected plant warning signs include proliferation of shoots, distortion of shoots and leaves, elongated reddened leaves, distorted flower buds and the overabundance of thorns. Ultimately, the disease weakens the plant causing it to decline and die. Early recognition of RRD plant symptoms is a key component to containing the spread of the disease. The University of Florida/IFAS Extension and the Florida Department of Agriculture and Consumer Services, Division of Plant Industry are working together to provided commercial growers, professional landscape personnel, professional scouts and county extension faculty with Rose Rosette Virus and Eriophyid mite information and scouting training.

Perhaps there is no other flowering plant in the world universally accepted for its beautiful flowers and fragrance, as is the rose (*Rosa* spp.). A serious infection of roses has been building in the United States dating back to the early 1940s causing symptoms similar to witches’ broom (multiple stems at the end of branches). The infection is called Rose Rosette Disease (RRD) and until recently was not found in Florida.

Rose Rosette Disease is caused by the Rose Rosette Virus (RRV). The virus was detected in 2011 by a research team at the University of Arkansas using polymerase chain reaction (PCR) molecular biology techniques on symptomatic roses (Ong et al., 2013). It belongs to the genus Emaravirus, a type of negative-strand RNA plant viruses. An eriophyid mite, *Phyllocoptes fructiphilus* Keifer, vectors RRV. The mite is associated with most rose plant species and cultivars (Hoy, 2013).

In Nov. 2013, RRD was detected in plant samples submitted to the Plant Disease Diagnostic Laboratory, University of Florida/IFAS North Florida Research and Education Center–Quincy using reverse transcription-PCR. Sample submitted to the Division of Plant Industry–Florida Department of Agriculture and Consumer Services Laboratory in Gainesville confirmed the diagnosis.

Three counties (Gadsden, Alachua, and Levy) have confirmed cases of RRV as of 15 Jan. 2014. RRD symptoms include (Paret et al., 2014):

- Witches’ broom-like appearance, small twisted leaves (herbicide injury can cause similar symptoms).
- Rapid growth from certain sections of the stem, dying branches, thorn proliferation, unusual reddening of leaves that does not change with age.
- Severe thorn proliferation is characteristic to RRD (Fig. 1);
- Unusual leaf shape on plants with RRD.
- Distorted flower bud.
- Leaf developing from flower bud tissue.
- Branch proliferation and distorted leaves.
- Rapid elongation of branches.
- Severe yellowing and stunting of the plant (infected plants usually die in 1–2 years).

There are no effective methods to treat an infected plant. Management considerations for RRD involve understanding common symptoms of RRD, routine scouting of plants in production areas or in the landscape, and destruction of symptomatic plants including roots. *Phyllocoptes fructiphilus*, the eriophyid mite that vectors RRV, has not been found to occur in Florida. It is
recommended to initiate a mite management strategy, especially during the spring, which takes into consideration a rotation of insecticide ‘Mode of Action’ as a defensive management plan. The nonnative multiflora rose, *Rosa multiflora*, is susceptible to RRD. It is not typically found in Florida’s natural areas but is sometimes grown and sold as ‘Seven Sisters Rose’. If it is found near production areas or in the landscape, this plant should be monitored for symptoms of RRD and destroyed if exhibiting symptoms.

**Literature Cited**


Fig. 1. Witches’ broom-like appearance, rapid growth from certain sections of the stem, dying branches, thorn proliferation, and unusual reddening of leaves are distinctive symptoms of rose rosette disease.