

Pest Alert

Florida Department of Agriculture and Consumer Services,
Division of Plant Industry

Rose Rosette Disease (*Rose Rosette Virus*) Found in Florida

Carlye Baker, Tim Schubert and Pratibha Srivastava

Plant Pathology Section, Florida Department of Agriculture and Consumer Services, Division of Plant Industry

Mathews Paret and Binoy Babu

North Florida Research and Education Center Institute of Food and Agricultural Sciences, University of Florida

INTRODUCTION: Symptoms called rose rosette disease have been known on wild roses, particularly *Rosa multiflora* Thunb. since it was first discovered in a survey done in 1940 in Canada (Conners 1941). Similar symptoms were observed on wild roses in the United States in 1941 in California and Wyoming (Thomas and Scott 1953). The syndrome spread to the Midwest and the South during the 1960-1990s and was found in Texas in 1990. The symptoms have long been associated with an eriophyid mite (*Phyllocoptes fructiphilus*) and/or a phytoplasma; however in 2001, a viral pathogen was associated with these symptoms. This virus species named *Rose rosette virus* (RRV, genus *Emaravirus*), was detected in infected roses by a research group from the University of Arkansas (Laney et al. 2011). In late 2013, this [virus was detected in roses](#) in a nursery in North Florida (Babu *et al.* manuscript in review).

SYMPTOMS: A number of different symptoms have been connected to rose rosette disease. These symptoms include rapid elongation of new vertical and lateral shoots with pronounced red pigmentation (Fig. 1), development of witches' brooms, and the production of thickened stems and an excessive amount of pliable thorns (Fig. 2). Flowering is reduced and flowers that do form have fewer petals, may be abnormal in color or the petals and sepals are converted to leaf like tissue. Leaves are small, distorted and can maintain a deep red color that does not fade with age. Infected plants decline and die one to five years after initial infection. When all of these symptoms are present, especially the excessive growth of thorns, diagnosis is straight forward; however not all varieties show all these symptoms and unfortunately some of these symptoms (witches' broom) are similar to herbicide injury on roses caused by glyphosate. If the pesticide has been used, making a diagnosis using symptoms alone is more difficult especially for early infections.

BIOLOGY: *Rosa multiflora* (multiflora rose) has been the major host of this disease. This plant was first brought to the U.S. from Japan in 1866 to be used as a root stock for other roses. In the 1930s-1960s it was planted to decrease soil erosion and to fence-in cattle. Over time, however, it has become so prolific that it is now considered a noxious weed. Rose rosette disease originally was welcomed because it killed unwanted multiflora roses. The disease is now making its way into commercially grown roses and is becoming a problem for the rose-growing industry and for home owners. No rose variety is immune to this disease. The movement into domestic roses is believed to be the work of the eriophyid mite vector (*Phyllocoptes fructiphilus*) from infected multiflora roses growing in proximity to a nursery or garden landscapes. The mites can be wind blown or may crawl from one plant to an adjacent one. Once a rose is infected, the disease can be spread by grafting or vegetative propagation.

MANAGEMENT AND CONTROL: As with all plant viruses, there are no chemical controls to rid infected roses of *Rose rosette virus*. Plants showing symptoms should be removed and destroyed. This includes removal of the roots if planted in a landscape. Commercial rose production and landscape roses should avoid proximity to multiflora roses whenever possible. Mite control is also recommended, especially during the spring. Insecticides with different modes of action should be rotated to prevent the mites becoming resistant. A PCR test has been developed to detect the virus in symptomatic roses.



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

SUMMARY: Rose rosette disease, first identified in the Rocky mountains in the 1940s, has moved eastward over time and has now been reported in the Midwest and the North Eastern United States. It has been identified in [Virginia](#), [Illinois](#), Delaware, New Jersey, [Kentucky](#), [Arkansas](#), [Kansas](#), [North Carolina](#), [Pennsylvania](#), [Michigan](#), [Iowa](#) and Wisconsin. It was found in East [Texas](#) in 1990 and has become more wide spread in the Dallas-Fort Worth area since 2011. It has also been found in [Georgia](#) and [Alabama](#). In November of 2013, it was found in a North Florida nursery. Since the mite vector is not known in Florida and the multiflora rose is not common in Florida it is hoped that garden roses in Florida can be spared this destructive disease. However, given the large market for roses, growers and buyers must be ever vigilant.

REFERENCES:

Conners, I.L. 1941. Twentieth Annual Report of the Canadian Plant Disease Survey 1940. Domain of Canada Department of Agriculture Science Service, Division of Botany and Plant Pathology, Ottawa. p.98.

Thomas, H.E. and C.E. Scott 1953. Rosette of rose. *Phytopathology* 43:218–219.

Laney, A. G., J.E. Keller, R.R. Martin and I.E.Tzanetakis. 2011. A discovery 70 years in the making: characterization of the Rose rosette virus. *Journal of General Virology* 92:1727-1732

Babu, B., H. Dankers, E. Newberry, C. Baker, T. Schubert and M. Paret. 2014. First report of Rose rosette virus infecting Rose in Florida. *Plant Disease*. (*in review*)



Fig. 1. and 2. Symptoms of Rose Rosette Virus. Photography credit: Christine Zamora, FDACS-DPI