

Rose Rosette Disease

GUIDELINES FOR GROWERS

WHAT IS ROSE ROSETTE DISEASE?

Rose Rosette Disease (RRD) is caused by a virus (Emaravirus sp.) spread by a tiny, wind-blown eriophyid mite (*Phyllocoptes fructiphilus*). Unlike other rose diseases, RRD can result in the death of a plant within 2–3 years of infection. All cultivated roses (shrubs, Hybrid Teas, Floribundas, Grandifloras and miniatures) are thought to be susceptible to the disease. However, several native rose species are believed to be resistant. RRD is limited to roses; no other plants in the rose family (apples, strawberries, cherries, etc.) are susceptible.

Distribution in USA:

Endemic to North America, RRD is now widespread across much of the United States. First identified in the Rocky Mountains in the 1940s, the disease spread down to the Great Plains and across the Midwest to the South throughout the 1950s and 1960s as multiflora rose (*Rosa multiflora*), the main host of RRD, was planted across the country. RRD then spread to major population centers in the Eastern U.S. and, in recent years, has been identified in most states along the Eastern coast. However, RRD is rarely seen west of the Rockies, most likely due to the absence of multiflora rose.

SYMPTOMS OF INFECTION

Early Stages:

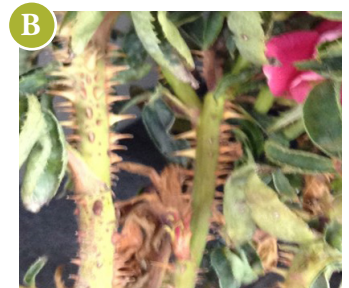
- One or two elongated shoots with unusual red or yellow color (*figure A*)
- Excessive thorniness (*figure B*)
- Succulent, thickened stems

Late Stages:

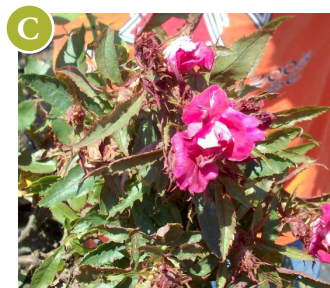
- Multiple deformed shoots
- Stunted leaves
- Distorted flowers that fail to open fully (*figure C*)
- Development of “witch’s broom:” very dense clusters of shoots or branches originating at or near the same point (*figure D*)



Red, elongated stem growth



Excessive thorniness



Deformed flowers



“Witch’s broom” cluster

Star® Roses and Plants is committed to combating RRD. Our company is funding and coordinating research on many different levels with in-house specialists, various industry professionals, and universities across the country.



HERBICIDE DAMAGE*

***NOTE:** Injury from herbicides may resemble symptoms of RRD. Herbicide contact, from glyphosate, for example can cause a compressed “witch’s broom” habit or stunted, narrow leaves (*see image to the left*). However, excessive thorniness and unusual red pigmentation does not usually occur with herbicide damage.

DIAGNOSIS

RRD infection can be confirmed by genetic testing. Symptomatic shoots can be sent for testing to the Plant Disease and Insect Diagnostic Lab at Oklahoma State: <http://entoplpl.okstate.edu/pddl/pdidl> or The Texas Plant Disease Diagnostic Lab at Texas A&M: <http://plantclinic.tamu.edu/>

TREATMENT

There is no cure for RRD. Immediately remove plant(s) when symptoms are first seen to prevent the spread of RRD to healthy plants. Simply pruning out the infected areas is NOT an effective method for eliminating the disease. The following method is recommended for removal:

1. Place a large plastic bag over the entire plant to avoid spreading any mites that may be present.
2. Cut the plant at the base (ground level) and seal inside the bag along with any fallen debris.
3. Dig up and remove the root ball and place in a separate bag.
4. Destroy the bagged plant and root ball by transporting to a landfill off-site—do not compost the material. Material should never be burned as it will cause the mites to balloon up and move to other plants.

A new plant can be placed in the same area seven days later, as the mites/virus will not survive more than a few days without a host.

PREVENTION

Elimination of Multiflora Rose

To eliminate reservoirs for the mite/RRD, multiflora rose (*see image to the right*) should be removed from surrounding fields within (at least) a 100-meter radius of rose nurseries/fields. Mechanical and chemical methods can be used including: frequent, repeated cutting or mowing 3–6 times per growing season for 2–4 years and herbicide application. Due to the long-lived seed, follow up herbicide treatments will likely be necessary. Systemic herbicides can also be applied to freshly cut stumps or to re-growth. Once multiflora rose has been eliminated, surrounding fields should be monitored for re-growth in spring and early summer.



Multiflora rose

Miticide Treatment

Chemicals registered for the control of eriophyid mites can be used to aid in reducing the incidence of RRD. Research at the University of Tennessee has shown mitocides with the active ingredients of bifenthrin, fenpyroximate, spiromesifen, or spirotetramat can prevent roses from becoming symptomatic for RRD. Experiments to determine the best frequency and rate of application are underway. Starting at bud-break and through the growing season, it is important that they are used in rotation to prevent mites from becoming resistant to any individual chemical.

Pruning

Dormant plants should be pruned just before new growth appears in late winter to help eliminate mites and eggs that hide in crevices of the cane-petiole axis. It is recommended that plants be cut back by two-thirds their size. There is no evidence that RRD can be spread mechanically; however, all tools should be cleaned and disinfected after pruning to avoid the spread of other common rose diseases such as crown gall and other viruses.