# Cedar-Apple Rust: A Threat to Trees in the Rose Family

By Susan Camp

Virginia is ranked sixth in the nation for annual apple production with most apples grown from the Piedmont to the northern Shenandoah Valley and down to the southwest counties. The Middle Peninsula and other eastern Virginia counties lack the environment and soil type necessary for commercial apple production, but many residents enjoy growing ornamental Rose Family members like crabapple (Malus spp.), hawthorn, quince, and serviceberry for their beauty and value to wildlife as habitat and food sources.

Native Eastern red cedar (Juniperus virginiana) and other junipers also grow prolifically in Coastal Virginia. An unfortunate fungal connection between junipers and members of the Rose Family can result in an endless cycle of infection. Gloucester Master Gardener and Tree Steward Jim Newton presented a PowerPoint at our August meeting on cedar-apple rust (Gymnosporangium juniperivirginianae) and two other less common rust diseases, cedar-hawthorn rust (G. globosum) and cedar-quince rust (G. clavipes). All three of these fungal diseases have similar life cycles and effects on their hosts. Jim stated that rust diseases are common on the Middle Peninsula.

Affected junipers include Eastern redcedar, Rocky Mountain juniper, southern redcedar, Chinese juniper, and some prostrate junipers. Apple, crabapple, hawthorn, quince, photinia, pear, and serviceberry are some of the Rose Family hosts.

The fungal spores infect a juniper tree or shrub in late summer and overwinter on the needles, developing into round, reddish-brown galls up to one inch in size during the following spring. During wet spring weather, bright orange, gelatinous, hornlike projections called telia protrude from depressions in the surface of the gall. The horns release spores during windy weather, which are blown onto the budding leaves and twigs of Rose Family trees. Signs and symptoms of juniper infection include the presence of galls, twig dieback, and yellowing of branch tips.

Infection of apple and other susceptible trees is characterized by yellow or orange spots on the upper surfaces of leaves and the development in midsummer of tiny, papery, tube-shaped fruiting bodies on the undersides of the leaves. Spores that are formed in these tubes are blown by the wind onto junipers in late summer. Infected fruit develops orange or yellow spots and may drop early.

What can we do to prevent or manage cedar-apple rust and its close cousins? The most obvious means of prevention is to avoid planting junipers and Rose Family trees near one another. A safe distance apart can be anywhere from 500 feet to 3 miles, so this often is an unreasonable solution to the problem. If trees are growing close together, you can choose to remove one of the species and enjoy just the junipers or just the fruit trees. If you decide to plant new trees, look for rust resistant varieties to purchase. Another option is to prune out the galls on the junipers, although your crabapple and other trees may already be infected. Cedar-apple and the other rusts rarely

kill trees, so you may decide to live with the problem. The final option is the use of a preventive fungicide on the junipers in the spring when the galls have turned orange and are actively releasing spores.

If you have questions about the appropriate fungicide to use for rust or other plant diseases, consult the Virginia Cooperative Extension Publication ENTO-603-C “Home Fruits: Diseases and Insects” in the 2025 “Home Grounds and Animals Pest Management Guide.” Always follow label directions and safety procedures when using chemical formulations. You can contact a Tree Steward through the Gloucester Extension Office at (804) 693-2602 and arrange a home visit.

VCE Publication 422-023 “Growing Apples in Virginia” contains specific information on apple production in the home garden. You can view a VCE-produced video about cedar-apple rust at https://m.youtube.com/watch?v=Kw1CMqorQK0. PennState Extension publication “Cedar Apple and Related Rusts on Ornamentals”; and the Morton Arboretum article “Cedar-apple rust” offer detailed information on the differences between the three fungal diseases and offer suggestions for management.