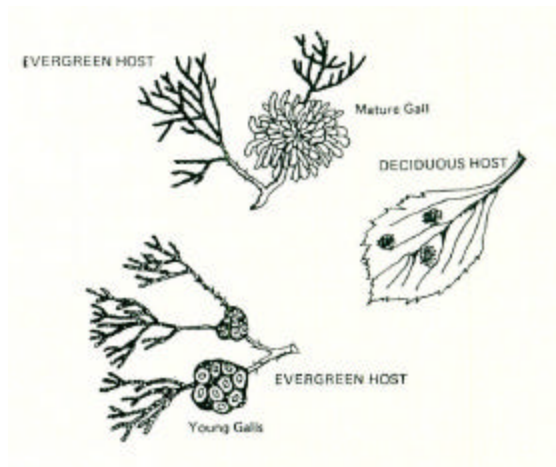


# CEDAR-APPLE RUST

Fungus - (*Gymnosporangium juniperi-virginianae*)



## HOSTS

- Conifer hosts are *Juniperus communis*, *J. horizontalis*, *J. sabina*, *J. sibirica*, *J. scopulorum*, *J. virginiana*, and many other varieties of junipers.
- Broadleaf hosts include *Malus*, *Pyrus*, *Chaenomeles*, *Sorbus*, *Crataegus* and members of the apple group.

## SYMPTOMS

### Conifer hosts

- Swellings or galls (up to 2 inches in diameter) on twigs and branches.
- Galls may be smooth or slightly dimpled like a golf ball. They are visible throughout the year.

### Broadleaf hosts

- Leaf spots are yellow-orange colored, depending on the particular host plant, first evident when leaves are full grown and continue to develop throughout the summer.

## SIGNS

- During rainy spring weather, galls on the evergreen host swell and form finger-shaped gelatinous, yellow/orange tendrils called spore horns consisting of fungal spores.
- Leaf spots on the broadleaf host will exhibit hair-like tendrils on the underside of foliage.

## LIFE CYCLE

- During rainy, wet weather in the spring, spore horns form on infected junipers.
- Spores are spread via wind and rain to broadleaf hosts. This infection period lasts for several weeks.
- Infected leaves will develop obvious yellow-orange-red spots apparent from both upper and lower leaf surfaces.
- Small black fruiting bodies may be apparent on the upper leaf surface of each spot. Spores from these structures function in sexual reproduction of the fungus.
- In late summer, hair-like tendrils develop on the underside of infected leaves.
- Spores are spread from tendrils on broadleaf hosts to susceptible junipers and infection occurs.
- The fungus grows within juniper twig tissue for approximately 20 months, forming an enlarging gall on the twig.

## MONITORING

- Look for galls on juniper twigs during the dormant season. Young galls may only be about the size of a juniper berry. Older galls can be much larger, up to golf ball sized.
- Examine junipers during wet weather looking for enlarged galls with spore horns.
- Examine broadleaf host leaves after they have become fully expanded, looking for obvious spotting.

## MANAGEMENT

- Prune galls on juniper whenever they are found.
- Remove nearby alternate hosts.
- Apply a registered fungicide to the broadleaf host at 7 to 10 day intervals when juniper galls are producing spore horns.
- Apply a registered fungicide to the evergreen host when spores are being spread from the broadleaf host.
- Plant less susceptible varieties.

*Illustration from ACedar Apple Rust®, Cornell Cooperative Extension Grow Book Fact Sheet.*

*Kathleen R. Hickey  
UMass Extension Educator  
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