Ontario Ministry of Agriculture, Food & Rural Affairs

Cedar & Quince Rust

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Rust Diseases

Cedar Apple Rust

Quince Rust

Rust Diseases

Cedar Apple Rust

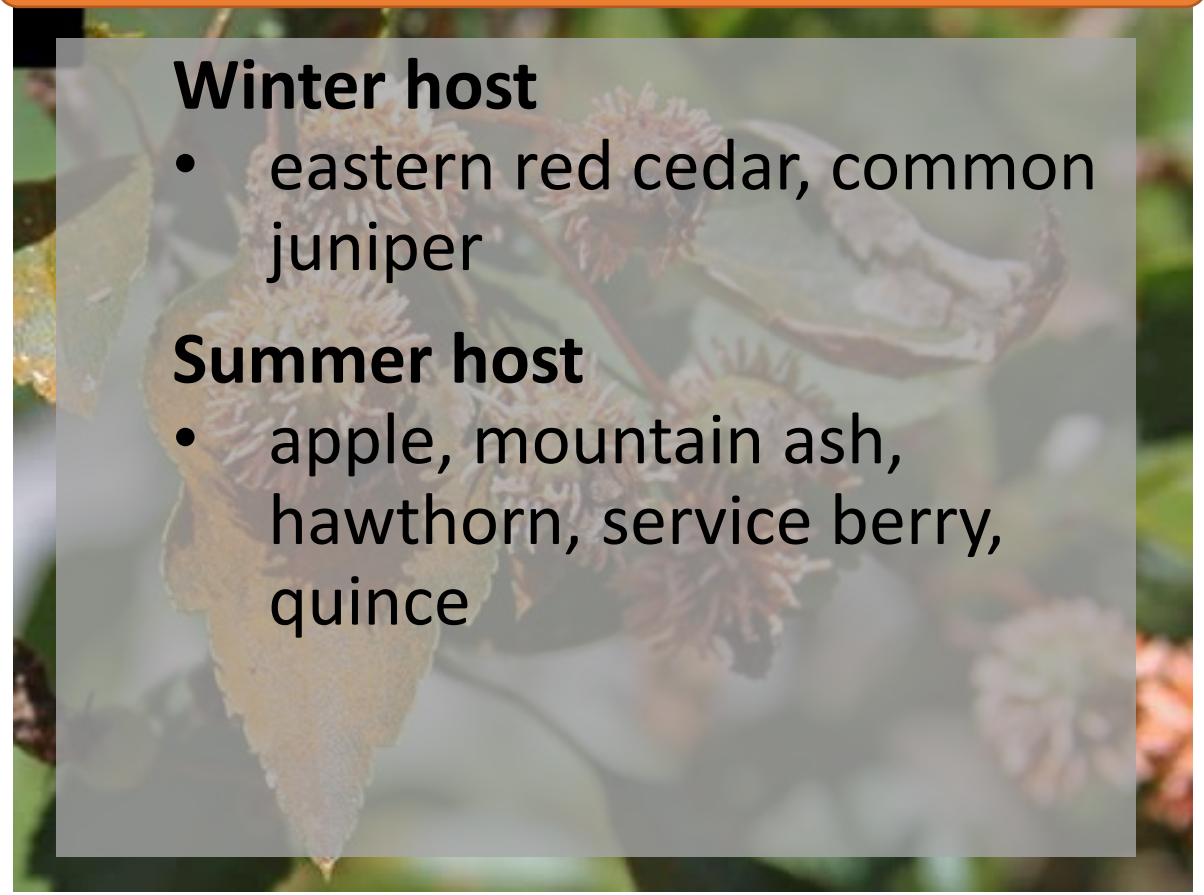
Winter host

- eastern red cedar, southern red cedar, Rocky Mountain juniper, some prostrate junipers, Chinese juniper

Summer host

- apple, pear, crabapple, hawthorn, quince, serviceberry

Quince Rust



Winter host

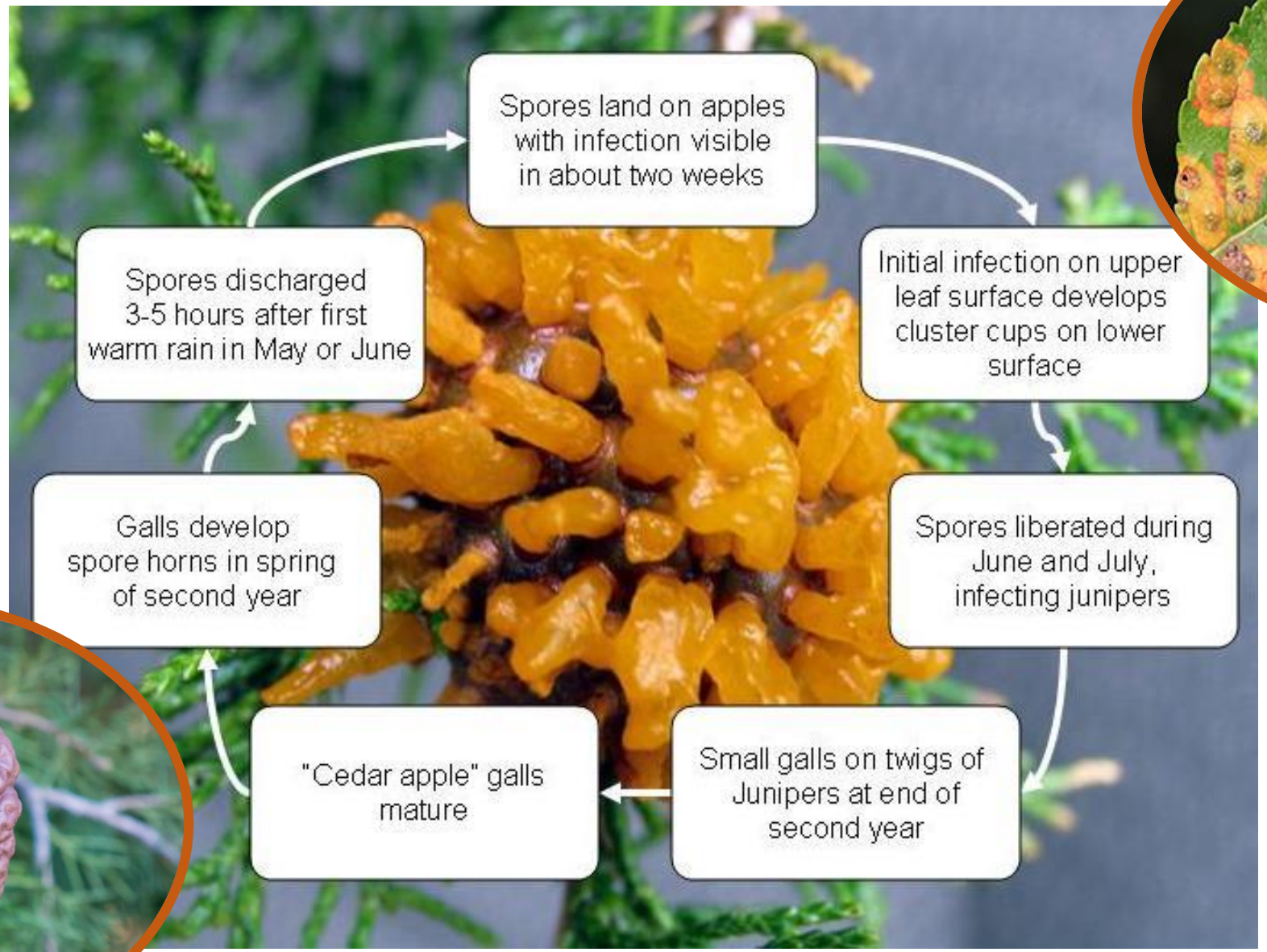
- eastern red cedar, common juniper

Summer host

- apple, mountain ash, hawthorn, service berry, quince

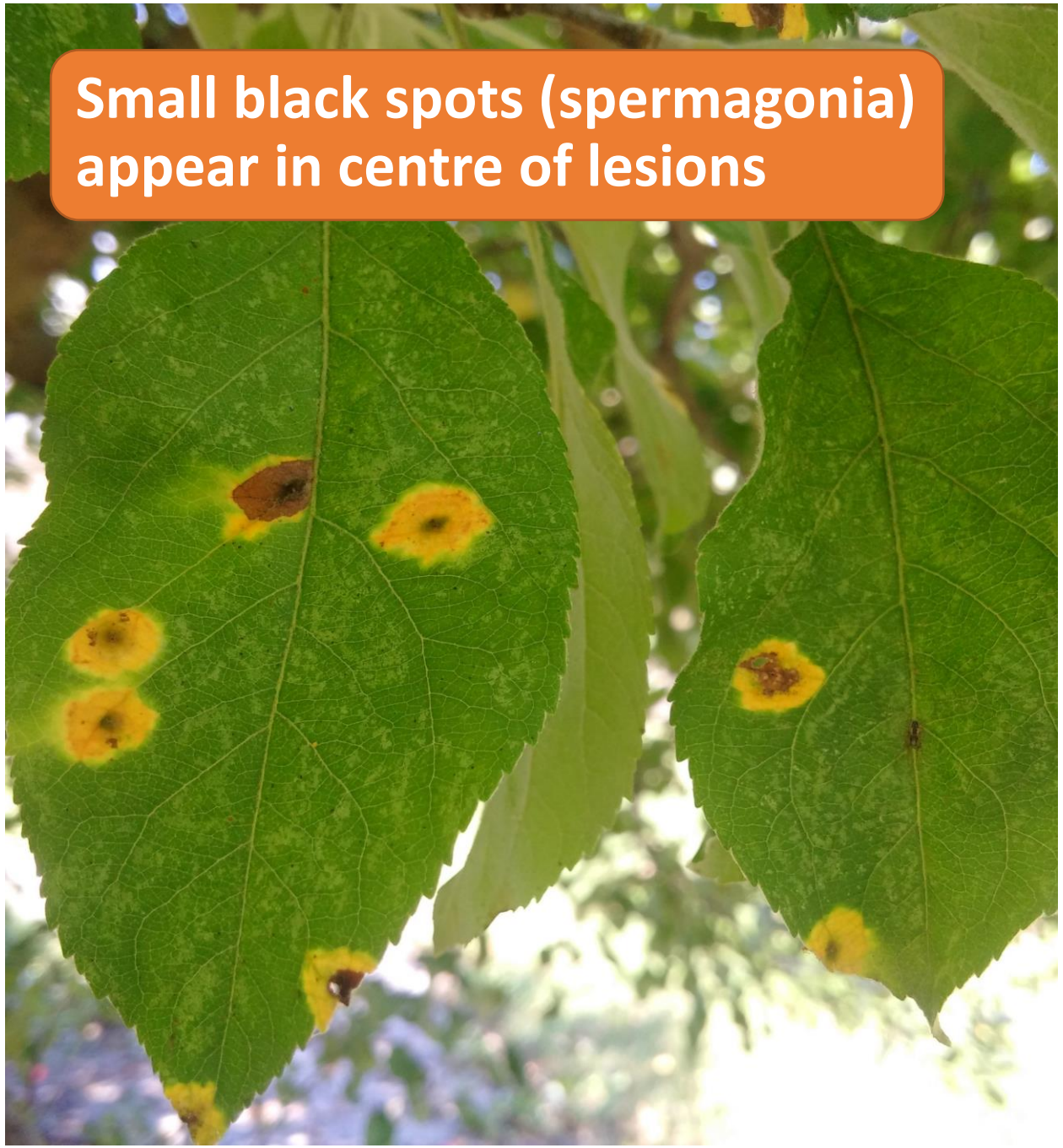
Cedar Apple Rust, *Gymnosporangium juniperi-virginianae*

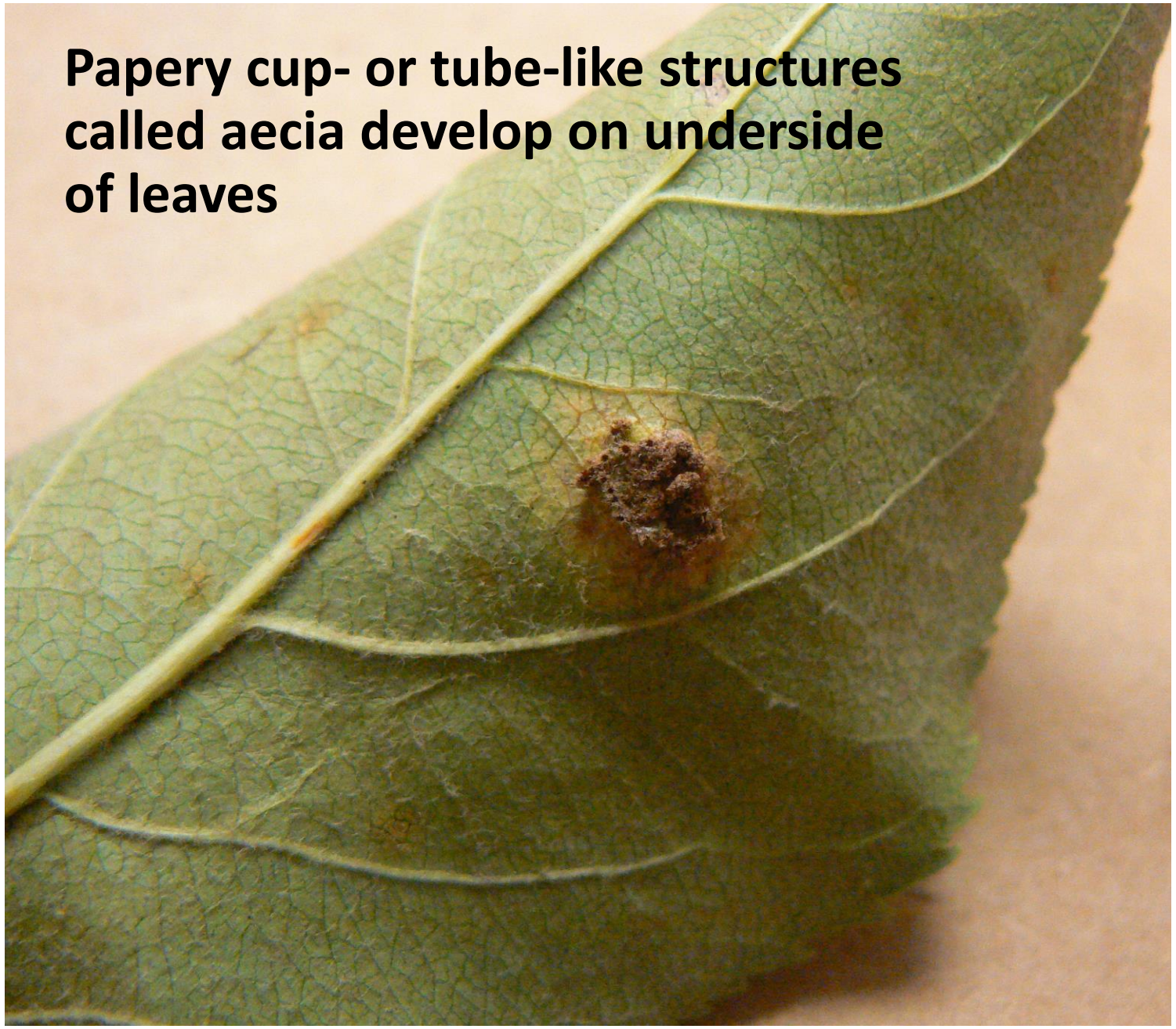
- OW galls in juniper hosts swell in mid- to late spring during wet or high humidity conditions
- Galls produce reddish-brown to orange gelatinous telia horns
- Apparent for a few days to several weeks each spring depending on the weather
- Spores dispersed by wind



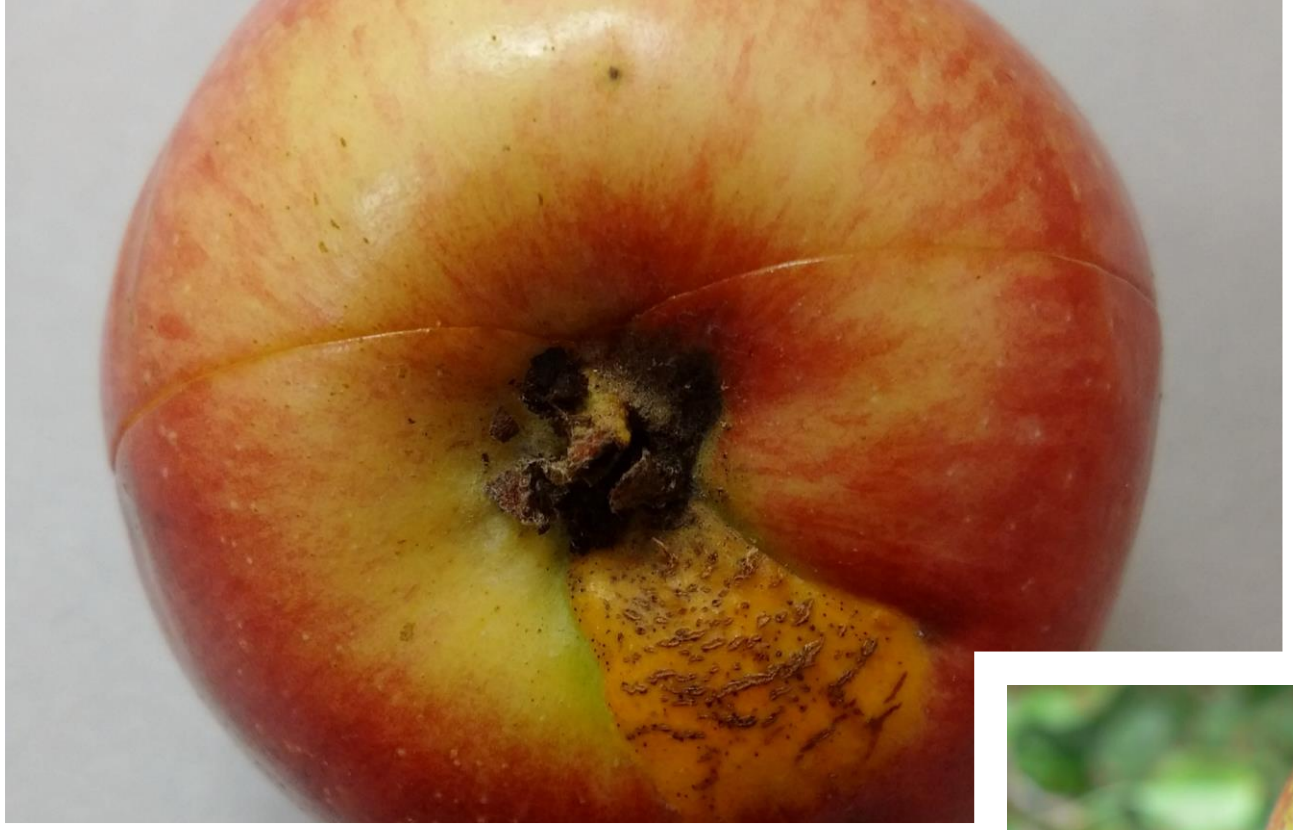

Michigan State University


Yellow or orange lesions on upper surface of leaves shortly after bloom


Small black spots (spermagonia) appear in centre of lesions


Papery cup- or tube-like structures called aecia develop on underside of leaves


Aecia produce powdery spores which are spread by wind



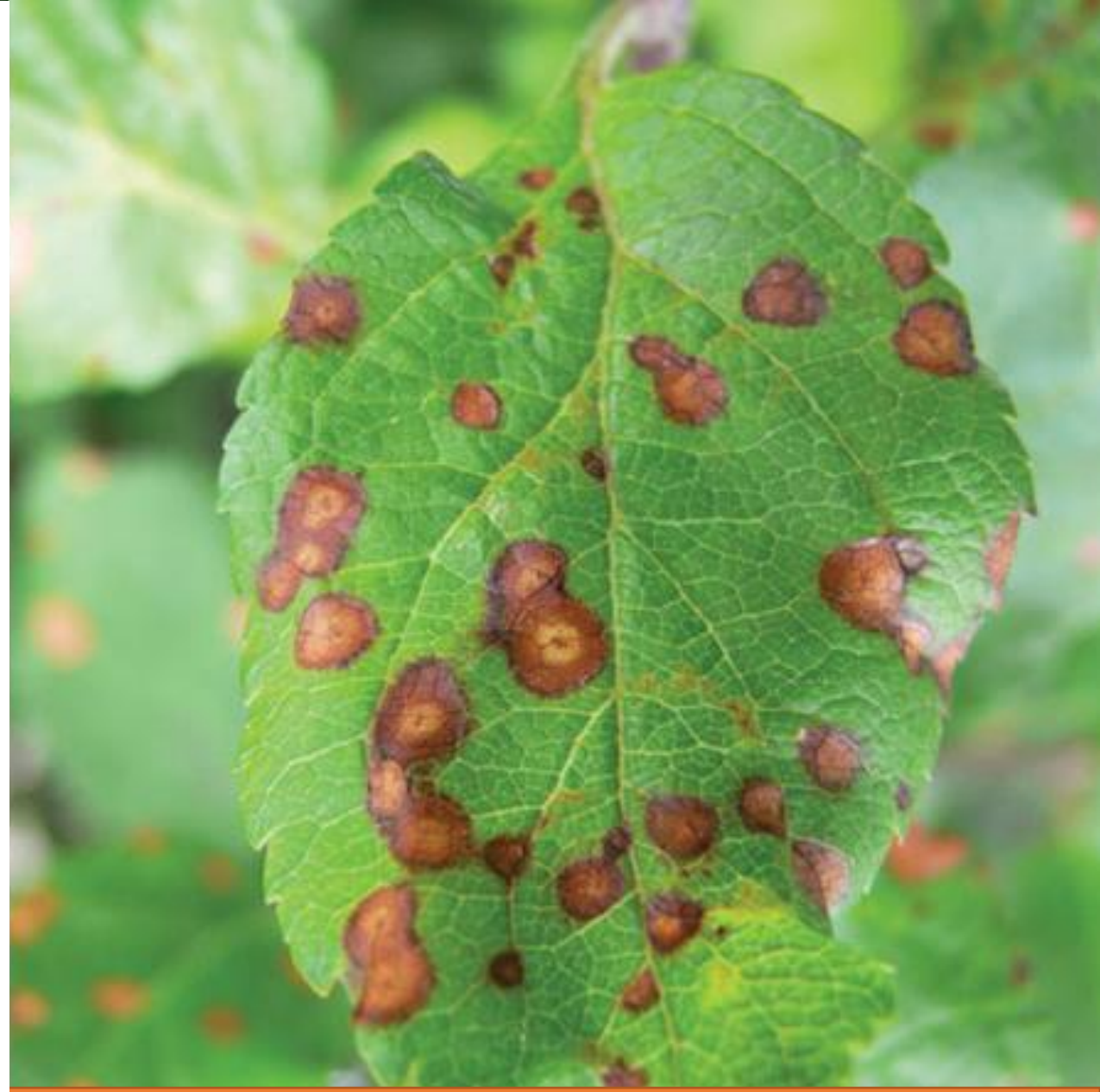
Aecia may develop on fruit, reducing the quality but are mostly superficial

May cause distorted growth of fruit

Cedar-apple rust on leaf (above) and fruit (below)

Apple scab on fruit and leaf

Cedar-apple rust on leaf



Frog-eye leaf spot caused
by black rot on leaf

Quince Rust, *Gymnosporangium clavipes*

- Galls / swellings on the tips of twigs and branches
- May crack and form cankers
- Wet spring weather, orange gelatinous blisters burst through bark
- Spores dispersed by wind

Does not cause lesions on apple leaves

Infect calyx end of fruit

Aecia develop in small dimple-like lesions that turn spongy and brown

- While spores can travel 6-8 km, most infections occur when alternate host within few hundred metres
- Infection of apples (summer host) from **tight cluster to petal fall** in warm, wet weather
- Short wetting period of 4-6 hours at 10°-24°C can result in severe infection; however long wetting periods around petal fall are particularly damaging
- Cannot spread from apple to apple or from red cedar to red cedar –must go through the two-year life cycle, alternating between hosts

Monitoring

- Susceptible varieties include Empire, Golden Delicious, Mutsu, Northern Spy, Red Delicious and Russet
- Scout for alternate hosts (e.g., juniper) near the orchard

Management strategies for rust

Cultural controls

- Cultivars vary in susceptibility to rust diseases (e.g., McIntosh, Liberty, Spartan resistant to both CAR and QR)
- Remove alternate hosts from vicinity of orchard where practical

Chemical controls

- Many fungicides registered for scab control also give good control of rust diseases
- Where rust pressure is historically high, program specifically for scab may not be adequate from tight cluster to after petal fall

Thank you

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