



RUSTS

Host Plants and Description

Rusts affect many different kinds of plants--herbaceous, woody and bulbous. Hollyhocks, mallows, chrysanthemums, campanulas, roses, hawthorns, apples and crabapples are some of the more common hosts. Rusts will not spread from species to species in the garden. They are highly specialized, with each type affecting only one group of closely related plants. Some rusts, however, spend a portion of their life cycle on an unrelated plant, and, in these cases, both hosts are necessary for survival of the rust. An example of this type of rust is cedar-apple rust.

Rusts are caused by fungi and spread by rain or watering, or by air currents. Rusts winter over in plant debris.

Plant Damage / Symptoms

Rust usually shows up first as pale, yellowish spots on the upper leaf surface. Corresponding patches on the lower leaf surface are filled with powdery spores of orange, brown, red, yellow or black. Spores are arranged in concentric rings or in pustules. Pustules may also develop on stems or even on flowers. Leaves may drop early and stems might become distorted and rupture. Dieback can also occur. On some host plants, such as junipers or red cedars, the rust shows up as reddish-brown galls rather than patches. Yellow-orange tendrils may be seen protruding from these galls during wet spring weather.

Controls

Some rusts, such as **hollyhock rust**, do not need an alternate host. At the first signs of rust, pick off the infected leaves and remove any leaves that have fallen to the ground. When flowering is over, remove and destroy all leaves, stalks and flowers that might have been affected, as the rust may winter over in any plant debris that is left in the area. Weeds (in the case of hollyhocks, the common weed mallow) can also harbor the disease; these should be removed and destroyed as well. Preventative fungicide treatments can also be used. These should be started when new growth begins in the spring.

Some recommended fungicides for the treatment of hollyhock rust: chlorothalonil, mancozeb, sulfur, Ferti-lome Halt, Hi-Yield Bordeaux Mix.

Cedar Rusts

Cedar rusts live one stage of their lives on red cedars or junipers and complete their life cycle on an alternate host such as apples or hawthorns. The infection begins as leaf galls on red cedar or juniper plants. The second spring, especially during warm rainy weather, these galls produce spores, which are spread by wind to infect the leaves and fruit of the alternate host (apple or hawthorn). These spores can travel as far as three miles.

The symptoms on apples and crabapples appear in mid to late spring, and start as pale yellow dots on the underside of leaves. Gradually, the dots enlarge and darken, turning orange with tiny black specks. Eventually, small cup-like structures form on the lower leaf surfaces, and these structures produce spores which are, in turn, blown back to the junipers or red cedars to start the cycle all over again.

The sequence is very similar for cedar-hawthorn rust, but the symptoms on hawthorn are red, gray, orange or brown spots on the upper leaf surfaces, and in some cases the twigs and fruit are also deformed.

Both cedar-apple and cedar-hawthorn rusts can cause leaf and fruit drop, sometimes severe.

Control involves removing the alternate host, if possible, or planting rust-resistant varieties. Preventative fungicides may also be used. Begin spraying crabapples or hawthorns at bud break and repeat two or three more times at ten-day intervals.

Fungicides Recommended for Control of Rust on Crabapples: chlorothalonil, mancozeb, maneb, sulfur, Ferti-lome Halt

Fungicides Recommended for Control of Rust on Hawthorns: chlorothalonil, mancozeb, sulfur

Fungicides Recommended for Control of Rust on Junipers: Copper, mancozeb, sulfur