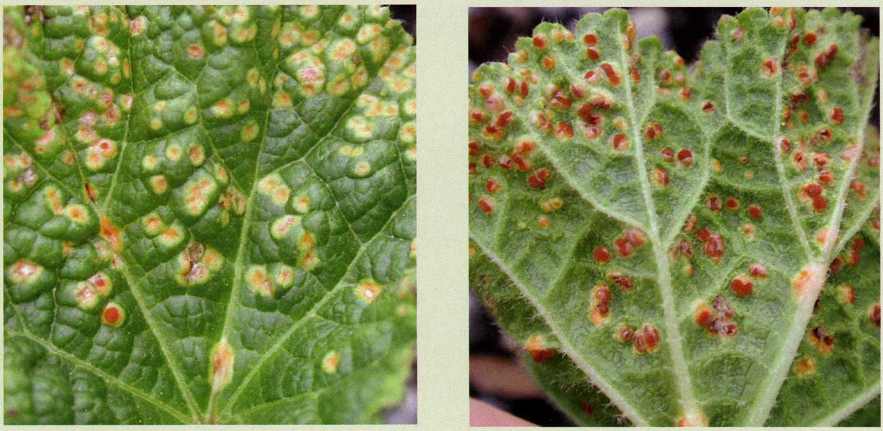
RUSTS

Damage symptoms
Infected areas may appear with chlorotic or necrotic spots. The rust fungi most often produce spores that are rust colored. Severe infection may limit growth, cause extensive defoliation and even kill the plant. Lower leaves are usually infected first. Stems or flowers may also be affected.

Host plants
Ageratum, hollyhock, windflower, snapdragon, chrysanthemum, carnation, impatiens, fuchsia, rose and many more.

Disease characteristics
Many rusts have two different life cycles and may produce 5 distinct spore types. Most greenhouse rusts however, produce 1 to 4 different spore types and have life cycles similar to other common leaf-spotting fungi. Two hosts, often a woody ornamental and a herbaceous annual may be infected with a single rust species but have different host phases. Each spore type or stage has a definite role in the life cycle of the pathogen. The most common spore stage on greenhouse crops is the uredospore. Uredospores are responsible for spreading infection in the same host plants in the greenhouse. The teliospores are not common on floral crops. Spores are spread by wind or water splash. Cankers may form from stem infections.

Management
- √ Remove plant debris infected by rust.
- √ In early stages of infection, remove diseased leaves.
- √ When watering, avoid wetting the foliage.
- √ Avoid excess condensation on leaves.
- √ Provide sufficient air circulation and do not place plants close together on benches.
- √ Several fungicides are effective for rust.
- √ Use resistant varieties when they are available.



Hollyhock rust, upper leaf surface with typical yellow spots (left); lower surface with brownish ruptured pustules (right).

Snapdragon rust.

Geranium rust, underside of leaf with circular rust pustules; single pustule enlarged (insert).