



## FASCINATION, OR LEAFY GALL

Fasciation, or leafy gall, a bacterial disease of ornamentals and a few other plants, caused by *Rhodococcus fascians* (synonym *Corynebacterium fascians*), is common on sweet pea and occurs occasionally on carnation, *Chrysanthemum*, *Dahlia*, geranium (florists', ivy, zonal), *Gladiolus*, *Nasturtium*, *Petunia*, and pyrethrum. Other ornamental plants reported as hosts include African violet, angel's-trumpet, *Aster*, baby's-breath, Begonia, *Buddleia*, butterfly-flower, *Cardamine*, coralbells, *Crassula*, *Delphinium*, *Euphorbia*, European cranberry-bush, *Forsythia*, *Hebe*, hollyhock, *Impatiens*, *Kalanchoe* larkspur (rocket), lily (Easter, regal), marigold (African, French), mullein (common, moth), *Nicotiana* (flowering tobacco), *Phlox*, *Physalis*, *Piqueria*, primrose, *Rhododendron*, *Schizanthus*, Shasta daisy, *Asparagus* (Sprenger), sweet-William, and wallflower.



Figure 1 (left). An abnormal cluster of small shoots (witches' broom) at a lower node of a carnation stem, characteristic of fasciation. Figure 2 (center). Fasciation at the base of two sweet pea stems. The plant on the right has developed a witches' broom. Figure 3 (right). Clusters of short, leafy branches near the soil line on a petunia plant—characteristic of fasciation, or leafy gall. (Illinois Natural History Survey photographs)

### Symptoms

Clusters of short, spindly or swollen, fleshy shoots develop at a node on the main stem. These shoots are dwarfed, with misshapen leaves and may be at, below, or near the soil line. This mass of fasciated growth

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resembles a small witches' broom (Figures 1 and 2) or a cauliflower-like head (Figures 2 and 3), and may reach a diameter of an inch to several inches. On geranium and sweetpea, a normal green color develops on the portion of the abnormal growth exposed to light.

The main stem of an affected plant sometimes appears to grow normally, but may be stunted. Blossoming is reduced. The roots on a diseased plant are sometimes short with swollen areas.

## **Disease Cycle**

The causal organism grows on the surface or in the outer few cell layers of a susceptible, young plant and stimulates the growth of shoots from normally dormant buds at the base of the plant. The bacterium can survive in the soil from one season to another, particularly in the greenhouse. How long the bacterium survives in the soil in the absence of a host plant is not known. It is not likely to be able to overseason outdoors in Illinois.

The bacterium is spread by: (1) taking cuttings from diseased stock plants; (2) planting infected seed; and (3) transferring the organism on hands or tools.

*Rhodococcus fascians* is an aerobic Gram-positive, nonmotile rod about 1/200,000 of an inch long (0.5-0.9 x 1.4-4 microns) occurring singly, with occasional pairs, and rarely in short chains. The rod grows most rapidly at 75° to 81°F (24° to 27°C) with a maximum of 99° F (37°C).

## **Control**

1. **Carefully remove and destroy (burn) all infected plants.**
2. **Immediately after handling a diseased plant: (1) Wash hands thoroughly with soap and hot water and (2) sterilize all knives and other tools.** Dip or swab them with a disinfectant such as a fresh solution of household bleach (1 part of liquid bleach in 5 parts of water), 70 to 95 percent grain or rubbing (wood) alcohol, Lysol or Listerol Household Disinfectant.
3. **Take cuttings only from healthy stock plants that have been inspected and found to be free of disease.** Plant disease-free seed as the bacterium can be transmitted on the seed coat.
4. **In greenhouses, plant in soil that has been sterilized by steam (180°F for 30 minutes or 160°F for an hour).** Also sterilize all pots, boxes, and other plant containers. Be careful to avoid introducing the causal organism into the soil or onto plant containers that have been sterilized previously.
5. **Rotate with nonsusceptible plants for one growing season or longer.**

The practices outlined above plus common-sense hygiene should eliminate fasciation as a problem in growing flowers in greenhouses or outdoors.