North Carolina Flower Growers' Bulletin

VOL. 17 NO. 1

FEBRUARY 1973

OFFICIAL PUBLICATION OF THE N. C. COMMERCIAL FLOWER GROWERS' ASSOCIATION



## COMMON DISEASES OF RIEGER BEGONIAS AND THEIR CONTROL

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Rieger begonias, especially the cultivars, Schwabenland Red and Aphrodite Rose, have become popular pot plants with North Carolina greenhouse growers. Three diseases are common on these cultivars - bacterial blight, foliar nematodes and, the seemingly always present, gray mold or Botrytis blight. Gray mold becomes a problem under cool moist conditions and as the name implies is recognized by the gray or brown mold produced on diseased plant parts. Symptoms of this disease usually are first found on injured leaves in contact with the soil or potting mixture. Healthy tissue which comes in contact with diseased tissue is quickly infected and rots rapidly under moist conditions. The fungus (Botrytis cinerea) that causes gray mold of begonia is the same organism that causes similar diseases of many other greenhouse floral crops such as geranium, snapdragon and lily. Therefore, the grower who wishes to control gray mold or Botrytis blight of begonia must also control this disease on other crops in his range. Control depends primarily on two factors - low humidity and good sanitation. The moisture content of the air in the greenhouse can be controlled by proper manipulation of heat and ventilation. Sanitation means keeping the greenhouse clean and free of pests. A very important aspect of a good sanitation program is the prompt removal from the greenhouse of diseased and pruned plant parts.

If gray mold becomes a problem, prune out and remove affected portions from the greenhouse and apply the fungicide Benlate 50 WP at a half pound per hundred gallons of water. Repeat the process in 10-14 days if the problem persists.

Little is known about the foliar nematode (Aphelenchoides fragariae) disease of begonia but it is thought to behave like the foliar nematode of chrysanthemum, Aphelenchoides ritzema-bosi. These microscopic worms survive in plant debris in the soil or in old leaves. In a film of water they are capable of moving up the stem to young healthy leaves where they enter through stomata and begin to extract juices from the plant using a needle-like feeding structure called a stylet. Reproduction occurs and after several weeks the destruction of tissues by hundreds of these nematodes within a small portion of a leaf becomes extensive and can be seen by the naked eye as slightly sunken, irregular, greyish-green areas which later become reddish-brown or black. Several weeks after these initial symptoms are seen, affected leaves wilt and die but usually remain attached to the petiole.

**REMEMBER THE SHORT COURSE DATES - MAY 20-22, 1973**

The key to control of foliar nematodes rests with the propagator. The use of nematode-free rooted cuttings and a good sanitation program will eliminate this problem. Foliar nematodes are more prevalent on Schwabenland Red than on Aphrodite Rose, possibly because of the method of propagation. This nematode is also an important pest of a number of other crops such as easter lily, gloxinia, african violet, fern and strawberry.

Should foliar nematodes become a problem, remove and destroy affected plant parts, separate plants so that leaves of one plant do not touch those of another and avoid wetting the foliage.

By far the most common and most damaging of the diseases of begonias listed above is bacterial spot (Xanthomonas begoniae). This disease was found in every begonia range examined last year. It is much more prevalent on Aphrodite Rose than on Schwabenland Red. Aphrodite Rose evidently is much more sensitive to the bacterium, so much so, that the name of the disease, bacterial spot, is inappropriate for this cultivar. In fact, "spots" are rarely seen as a symptom on Aphrodite Rose. The most common infection site on Aphrodite Rose is at leaf margins, possibly through minute pores or hydathodes. Usually one to three of these sites are seen on a given leaf. Tissue in a localized area first becomes watersoaked, then yellowish-green and then turns brown. The lesion takes the shape of a "V" with the leading edge pointing toward the stem. As the lesions enlarge to about the size of a pencil eraser, the site of infection at the leaf margin becomes brown while the leading edge of the lesion is yellowish-green. The brown or necrotic tissue is characteristically speckled. Both sides of the lesion are similar in appearance. The size of the lesion increases rapidly in succulent tissue depending on the temperature -- the higher the temperature, the more rapid the increase. At daytime temperatures of 80-85°F, only a few days are required from the time the symptoms are first seen for the diseased area to reach the petiole. The conductive tissue and the pith of the petiole are rapidly destroyed. At this time the affected leaf wilts and dies. More importantly, however, is the fact that by the time wilting and death of a leaf is observed, the pathogen has entered the stem of the plant. When this happens the plant is lost. Portions of the plant may remain erect for a week or two after the bacterium has invaded the stem but it does not recover. The plant dies. Exterior symptoms on infected petioles and stems appear as light yellow or white, longitudinal, slightly raised streaks.

Control of this bacterial disease again rests primarily with the propagator. The use of propagating material free of the causal bacterium along with good sanitation practices will control this disease.

Measures which should be followed to reduce losses from this bacterial disease are:

1) When plants are received, remove and destroy spotted and injured leaves.
2) Space pots to allow for good air movement between plants and to keep plants from touching each other.
3) Water so as not to wet the foliage.
4) Inspect plants carefully for symptoms at least weekly and remove and destroy affected portions as soon as they appear. This is especially important the first 6 weeks after plants are potted.