

CARNATION "LITTLE-LEAF NECROSIS"

Flower producers and wholesalers are becoming more critical of their product. Production is being maximized and an effort is being made to make each immature bud a high quality, salable bloom. For this reason more growers are looking critically at their crop in the greenhouse and are observing symptoms of abnormalities as they occur.

One of these symptoms in carnation ranges involves in the smallest leaves on the flowering stem immediately below the bloom. We've termed the malady "little-leaf necrosis". It can best be described as the development of semi-circular necrotic (dead) areas on the leaf margins (Fig. 1 and 2) which often coalesce and effect the entire leaf (fig. 3). In serious cases, the next set of leaves below shows the same symptoms. The calyx may also partially dry (Fig. 4).

Much confusion exists about this disorder. Symptoms of other troubles (e.g. spray injury) may be similar and easily mistaken for it.

The development of "little-leaf necrosis" appears to begin, in most cases, only after bud split. The resulting condition often may not be serious enough to make the bloom unsalable. Growers apparently have differing opinions on this, depending on grading standards and the type of market. However, the disorder has undesirable side effects when the flower is stored or shipped.

Botrytis (grey mold) quickly invades the dead tissue and frequently spreads to adjacent floral tissue, thus damaging the entire lot of flowers. In addition, excessive splitting often occurs in the severe cases where the calyx is involved.

"Little-leaf necrosis" can be found in some ranges throughout the year. However, Dan Smith, U.C. Department of Environmental Horticulture Specialist who has been investigating this malady, has observed that it most frequently occurs on first year crops maturing during the fluctuating spring and fall months. He reports that numerous attempts to diagnose the exact cause of this disorder have been largely negative.

It is apparently not caused by a parasitic organism, according to A.H. McCain, Extension Plant Pathologist. Smith feels at this point that it is a physiological problem. T.G. Byrne, Alameda County Farm Advisor, has been unable to correlate the abnormality with soil salinity. It has seldom, if ever, been observed in two different ranges in that county having soil salinity levels as high as 10 and 12 mmhos/cm².

Smith reports that it is very difficult to find occurrences in ranges in which neither the potassium nor the magnesium is either excessive or limiting. He is continuing investigations of the potassium/magnesium relationship aspect. It is worth noting that in a recent survey he conducted in 12 different ranges, little of the disorder occurred where growers used dolomite instead of agricultural limestone in their preplant operation.



Figure 1

Figure 2

-6- Figure 3

Figure 4