

Exocortis of Trifoliate Orange

resembles shell bark of lemons and scaly bark of oranges

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Exocortis—a shelling of the bark of the trifoliate orange—has been noted occasionally for many years, but hitherto has been considered a minor manifestation on this stock.

It occurs as a type of bark shelling or scaling more nearly resembling shell bark of lemon, than it does scaly bark of oranges, but apparently is different from either.

Exocortis is characterized by narrow strips of outer bark becoming dry, tending to separate from the inner, live bark and slowly peeling off as it weathers—similar to the peeling of a shell bark hickory tree of the Eastern states.

The strips may be from one to five inches long, one-eighth to three-fourths inches wide, and one-sixteenth to one-eighth inch in thickness.

In a trifoliate orange tree growing on grapefruit stock on the Los Angeles campus of the University of California, the entire tree trunk above the bud union is affected. The bark on all branches except parts of some of the smaller branches has longitudinal cracks with various stages of bark shelling.

Dwarfing

Marked dwarfing of the trees on trifoliate stock is generally associated with the occurrence of exocortis.

In the comparatively few southern California orchards in which trifoliate orange stocks have been located, possibly five to 25% of the trees have this bark shelling, are much smaller trees, and usually show lack of vigor. This association of marked dwarfings with exocortis has been noted with grapefruit, navels and Valencias.

The trees of these varieties are often smaller on healthy trifoliate stocks than on sweet orange stocks, but when exocortis is present the stunting is much more marked.

Lemon trees are generally much smaller even on normal trifoliate stocks than on other commercial stocks.

On two 23-year old navel trees at the Citrus Experiment Station at Riverside, the trunks above the bud union are one-half of the average diameter of 20 other trees with normal trifoliate stocks. The volume of the affected top is one-sixth to one-fifth that of the normal top.

In a commercial orchard of grapefruit in the Claremont section the difference is even greater between the affected and the nonaffected trees.

Cause Unknown

The nature or cause of exocortis is not yet known.

It is believed that it is either due to a genetic factor, in which case it would be

inherent in the seedling trifoliate from the first before it is budded or that it is due to a virus.

In the latter case, it probably would not come through the seed but would come by means of infection of the trifoliate seedlings or the scion at the time of or after budding.

Experiments now are underway to determine, if possible, the real nature of exocortis.

When trifoliate is considered as a possible rootstock for new plantings, it should be kept in mind that the general tendency of this stock, even when healthy, is to restrict growth and that there is the added hazard of a considerable percentage of the stocks to develop exocortis.

Recommendations

Until the facts regarding the cause of exocortis are known, the following suggestions are in order:

1. Take no budwood for propagation from trees on trifoliate which show the least beginnings of exocortis.

2. Use no seeds from trifoliate trees showing exocortis of the bark.

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Exocortis of trifoliate orange stock: Left, stunted tree; Right, detail of bud union and rootstock, showing scaling.

