

IS THE TAFT VARIETY A HIDDEN CARRIER OF SUNBLOTCH?

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Some years ago the writer planted a Taft avocado tree in his variety collection at Vista. There is no record of the source of the bud from which this tree was propagated. The tree grew well and came into bearing as a beautifully shaped tree. At that location the fruit had a tendency to drop before full maturity, but there was nothing abnormal in the appearance of the fruit, and at no time were any sunblotch symptoms seen.

It was decided to top-work the tree to Fuerte. The writer personally cut scions from a selected "mother" Fuerte tree in the same orchard which was noted to be healthy and an excellent bearer. Buds and scions from this tree had been used for several years without any signs of sunblotch. The writer personally top-grafted this tree. All three scions grew and all were so severely sunblotched that they soon hung down by the trunk. The tree was removed and replaced with a cherimoya. Why those healthy Fuerte scions showed sunblotch has remained a mystery.

Recently the writer was visiting with Mr. Wm. F. Ward of Avon Park, Florida. Seeing some sunblotch in his orchard, Mr. Ward explained that it occurred on top-worked trees which had a Taft sandwich. He called attention to an excellent description of this case published by Stevens.¹ This is so much to the point, I cannot do better than quote at length:

"The appearance of sunblotch in the Avon Park section in 1938 is not easily explained, unless certain varieties of the avocado may act as hidden carriers of the disease. The history of this outbreak is interesting and unusual. West Indian seedlings were grafted (1925) with tip buds from a Taft tree growing near Lake Wales, Florida. The young trees, about 30 in number, were budded by the owner, grown under nursery conditions, and later planted in two rows across the grove. The trees did not prove to be satisfactory producers, and all of the Taft trees were later (1932) top-worked to Taylor and Nabal varieties. The Taylor budwood came from Taylor trees on the place, but the Nabal budwood was obtained from 2 sources in California, and it was stated to have come from trees free from sunblotch. At the time the Taft trees were worked over, seedling trees on either side of the two rows were also top-worked with some of the same budwood from California. All of the Taft trunks that had been budded to Taylor and Nabal developed more or less sunblotch this season (1938), and none of the adjacent trees or other trees in the grove that had been grafted with the same Nabal and Taylor budwood showed any indication of the disease. This would indicate that the disease was not carried in the budwood of the Nabal from California or in the local Taylor budwood, since the disease only appeared on trees that were formerly Taft buds. The owner stated that no evidence of sunblotch was visible on the Taft trees before the tops were cut back and reworked, and no evidence of the disease is visible now on

scattering branches of Taft that can be found on a few of the affected trees."

"The Taft tree at Lake Wales from which the first budwood was obtained was later examined, but no visible indications of sunblotch could be found. It is a large vigorous tree, and it has fruited rather consistently since it came into bearing. It was one of a group of 50 Taft trees obtained from a local nurseryman and planted 22 years ago. The rootstock is unknown, and the source of the budwood was probably California, since the Taft variety was developed in that State. The remaining Taft trees in this planting show no evidence of sunblotch; however, a majority of these show severe decline and have not produced any fruit for several years. None of the Taft trees in this grove has yet been top-worked to other varieties. It has not been possible thus far to trace the infection in the grove at Avon Park back to any definite source. If the Nabal scions from California carried the disease it would have undoubtedly appeared on some of the trees other than Taft that were top-worked with the same budwood. This did not happen; but all of the Taft trees reworked to both Taylor and Nabal developed typical symptoms of sun-blotch, and the only infected trees found in this planting were those top-worked on Taft trunks or else developed from scions taken later from these trees. This indicates a possible relationship between the reworked Taft trees and the later appearance of the disease. It is definitely known that an infected scion may transmit sunblotch to the stock on which it is grafted, and this stock, if later rebudded or grafted, may transmit the disease to the new top. Because no sunblotch was observed on these Taft trees before top-working, and no indications of the disease are evident at present on the original Taft tree from which the budwood was taken, it is difficult to explain the infection in this case, except on the assumption that the disease was carried in the Taft scions in a hidden form."

The experience of the writer described above tends to confirm Stevens' theory that the Taft variety is capable of harboring sunblotch virus in a hidden form. This brings to mind several disturbing questions. The original Taft seedling at Orange, California appeared, in its heyday, to be normal in every way. When and where did this variety become infected? Which of the old Taft trees still bearing in California carry this virus? What is the chance of success in top-working any Taft tree? If one variety, such as Taft, can carry sunblotch virus in hidden form, do any other varieties have the same faculty?

There is a growing body of testimony from nurserymen that certain old and healthy looking Mexican seedlings, previously used as a source of seed for planting, probably carry sunblotch in a latent form. Some nursery seedlings from such trees show sunblotch, and the suspicion exists that those which do not show it may carry it in hidden form as did their parents.

All this increases the difficulty of arriving at any satisfactory method of certification of mother avocado trees for propagating purposes. It is indeed fortunate that our leading variety, the Fuerte, shows the symptoms of sunblotch so clearly that there is no excuse for cutting virus infected Fuerte buds.

(1) *Avocado Diseases in Florida; H. E. Stevens and R. B. Piper; U.S.D.A. Bureau Plant Industry Cir. 582. pp 44, 45, 1941.*