

Woody Avocado Fruits

C. A. Schroeder

University of California, Los Angeles

The occurrence of avocado fruits which resemble irregular-shaped masses of woody tissues is not infrequently observed in avocado orchards. Hodgson (1) has described and illustrated some of these abnormal fruit forms. These fruits exhibit a wide range of morphological characters, varying from a slightly enlarged stem tip to irregular or spherical masses of woody tissue. Some even have a rosette appearance suggesting a compact mass of reduced, fleshy bracts. These are often green in color, while the smoother, spherical sorts are generally brown and of corkier consistency. While these fruits generally weigh only a few ounces, some of the woody forms attain a weight of several pounds.

The causes for the occurrence of such abnormal fruits are entirely unknown. The appearance of these fruits, however, suggests a response to insect injury of the general type represented by bud mite injury of young lemon fruits. Although all the specimens brought to our attention so far have been from Fuerte trees, other varieties are reported to have borne such monstrosities.

Anatomical investigation of these aberrant fruits has shown that they are not typical of the normal avocado fruit, but have instead the general structure of a woody stem. As shown in Figure 1, the greater portion of the woody fruit consists of vessels, fibers and wood parenchyma cells, as does the normal stem. A distinct cambium found near the periphery gives rise to new xylem and phloem elements which results in the increase in volume of the woody fruit. Highly pitted and lignified vessels are found in the xylem. The occurrence of stone cells and oil cells in the cortex is the only similarity to normal fruit structure found in these monstrosities. Generally a thick layer of corky tissue covers the entire woody mass.

These woody fruits are of interest to the horticulturist and botanist, for the nature and arrangement of their constituent tissues are so similar to those of the normal woody stem as to clearly suggest the possibility that the avocado fruit may be partially of modified stem origin.

(1). Hodgson, R. W. Avocado fruit abnormalities. California Avocado Assoc., Yearbook 1935: 90. 1935.

LEGEND FOR FIGURE 1

Anatomical features of woody avocado fruits. A. Sketch of a woody fruit. B. Diagram of portion of cross-section through fruit. C. Detailed section through portion of wood tissue showing typical stem structure. D. Group of stone cells in cortex. E. Xylem vessel, c-cord, f-fibers, o-oil cell, xy-xylem, xy-r-xylem ray, phi-phloem, v-vessel.

