

THE IMPORTANCE OF THE FUERTE VARIETY

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Within recent years there has been a continual reduction in the planting of Fuerte avocado trees in California. Twenty-five years ago the proportion of Fuertes being planted, with respect to all other varieties, was about seventy percent. Ten years ago it was down to about twenty percent. Today it is only about ten percent. Older bearing orchards are being top-worked to other varieties, lost to encroaching subdivisions and dying out with root-rot. This is unfortunate for the California industry which has a unique advantage in being able to harvest and market avocados every week in the year. To do this the Fuerte variety is essential because of its prime marketing season from January through March. At that time no other acceptable variety is available. Extensive advertising by pictures of the Fuerte throughout the Midwest and East resulted in many thousands of consumers getting acquainted with avocados for the first time. The Fuerte symbolizes their idea of an avocado. These years of advertising should continue to be capitalized on — not lost.

The very interesting history of this variety is amply recorded in previous Society Yearbooks and need not be considered here.

It may not be amiss however to enumerate some of the valuable characteristics of this variety.

THE TREE

Vigorous grower, spreading in stature, relatively frost resistant. When not too crowded it is easier and cheaper to harvest. Buds are large, plump and take well on nursery root-stocks. Budded Fuerte nursery trees are cheaper to grow than the Hass variety.

THE FRUIT

Marketable size, an attractive green color, oil content ideal, flavor excellent, unique and long season. December to April, avoids competition with most other fruits and vegetables. The skin peels readily during mid-season. Easy to tell by gentle pressure when ready to eat. Does not discolor soon after cutting and dicing. It endures picking, hauling, packing, cold storage and transportation. On retail stand shows aging decline first by spots on the skin rather than around the seed.

Of course the total avocado crop varies widely from year to year due to weather, alternation and other influences. The Fuerte differs little in this respect from other varieties. But the main reason why Fuerte planting is decreasing is because the profit, on a per acre basis, is discouragingly low. The principal cause of this is that each tree in

the orchard has a different yield habit. A few are excellent bearers, some medium, but too many bear little or nothing although they grow side by side and appear equally healthy. The degree and importance of this variation in yield has been demonstrated by individual tree crop records by growers as well as by common observation. If the yield per acre could average that of the best five trees in the acre, the likely profit would indeed be intriguing.

PROBLEM NOT NEW

We may not be able to counteract subdivision encroachments. With respect to root-rot we have not so far been able to save the older infected orchards, although we now know how to avoid root-rot in most new plantings. But no progress has been made in efforts to grow Fuerte nursery stock, each tree of which bears as much like its neighbors as is the case with Hass or oranges and lemons. The obstacle is the necessity of using heterozygous seeds for root-stocks. The Fuerte variety being a hybrid between Mexican and Guatemalan species is by nature peculiarly susceptible to many and obscure influences between diverse stocks and the scions.

Hodson and Cameron published an exhaustive study of the bearing behavior of the Fuerte¹. But they did not "pin-point" the heterozygous differences between individual root-stocks. At a meeting of this Society at Santa Ana years ago the program featured talks on the same subject by several growers and investigators: "How to Make the Fuerte Bear." The correct answer remained a mystery.

At that time much attention was paid to some seven or eight mutations of "strains" within the variety and more careful selection of budwood was recommended. It was suggested that more uniform bearing might be had by the use of rooted Fuerte stem cuttings. In 1936 Eggers and Halma did root cuttings from young Mexican seedlings, but failed with the Fuerte.²

In 1951 Frolich rooted cuttings of Guatemalan varieties, but with difficulty.³ In 1952 Halma and Frolich successfully rooted cuttings from four Mexican and four Guatemalan varieties.⁴ Unfortunately the Fuerte was not included in this test. The conclusion drawn from the above mentioned tests was, that while it was possible to root cuttings of some kinds of Mexican and Guatemalan avocados, the methods were too time consuming and costly for commercial use. Some nurserymen had found a little more uniformity in appearance of seedlings in the nursery row by using seeds of one budded variety (such as Duke or Topa Topa) growing in a more or less isolated situation. But the objectionable hidden influences of the heterozygous nature of the seeds still appear in the resulting trees.

While such influences between stock and scion are many and diverse, and some of little consequence, the tendency of many stocks to force very early bloom is of major importance. By the time night temperatures rise to a point conducive to fruit set, there may be no flowers left on such trees.

WHAT TO DO?

If this industry is to retain the benefits of the outstanding advantages of the Fuerte variety, it is high time to undertake more vigorous research on this problem. No possible avenue toward success should be overlooked. Perhaps the unsolved problem of rooting Fuerte cuttings commercially (and finding out how they bear on their own roots) should be re-studied in the light of more modern techniques. Among thousands of Mexican (and perhaps even Guatemalan) seedlings some may be found which, on the average, will cause adequate retardation of bloom.

Much research has been devoted to efforts to improve the bearing habit of Fuerte by breeding. Efforts along this line include, W. E. Lammerts, in 1942⁵, and 1945⁶; C. A. Schroeder, 1948⁷; B. O. Bergh, 1961⁸, and W. E. Storey and B. O. Bergh, 1963⁹. None of this work resulted in satisfactory solution of the problem.

When cross-pollinated by some other varieties, certain individual Fuerte trees produce a better crop. The proportion of this response among trees in the same orchard deserves further study to determine if interplanting Fuerte for this purpose is likely to pay. In spite of past failures, the Variety Committee should resume its long neglected search for a new seedling variety which, to a degree at least, combines the above mentioned elements of marketability with the Fuerte's unique season of maturity.

This industry is destined to grow. If so few Fuerte trees are planted in the future, can the industry afford such serious neglect of the valuable avocado marketing season of January, February and March?

REFERENCES

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