

SELECTION OF AVOCADO VARIETIES IN ISRAEL

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A major problem facing the avocado industry in Israel as well as in California is the low productivity of the commercial varieties. One of the possible solutions is to find new varieties which, under Israeli conditions, will bear steady and high yields, and will be at least as good as the existing ones. Concurrently with the examination of the performance of new varieties from abroad, a large-scale selection for new varieties was started in Israel five years ago. The basis for the selections included thousands of avocado seedlings which were planted in the 1950s as windbreaks around commercial avocado groves, and hundreds of chance seedlings in private gardens and groves.

From about 4,000 local seedlings which have been tested, 16 promising types were found and are still under observation, Three of them are about to be planted commercially, and are described in this article.

TOVA. The original seedling was found in 1963 in the garden of the late Mrs. Tova K. at Pardess Hana (Approximate date of planting— 1955). It is a small tree with a roundish canopy, bearing very heavy yields. In the spring of 1964, about 60 grafted plants of this variety were planted in various parts of the country. In the autumn of 1966, the first yield was picked which was very heavy indeed. Since then, all the trees have been bearing very heavy annual yields (see Table 1).

NETAIM. The original tree was found in 1964 in the yard of Mr. Ch. Avirah at Netaim (approximate date of planting — 1956). In the spring of 1964, 14 trees were grafted at Netaim to this variety—two young seedlings and 12 bearing trees. In the spring of 1967, the grafted trees came into bearing. The original tree is big, and its yields are fair and regular. The grafted trees are broader and their yields are very high and alternate; the branches drop because of the fruit weight, thus forming a round canopy. Since 1967, all the grafted trees at Netaim have borne three very heavy yields. The picking season coincides with that of the Nabal variety, but fruit quality is higher and the tree does not have the brittle limbs found on the Nabal variety.

HORSHIM. The original seedling was found in 1964 in the avocado grove of Kibbutz Horshim (planting date, 1958). The original tree is tall, while the grafted trees are broader and of a more spreading nature. In the spring of 1967, 18 bearing trees were top-grafted to this variety in the same grove. In the spring of 1970 they flowered for the

first time, but because of the exceptionally high temperature —47°C —and dry desert winds which prevailed during the time of fruit set, no fruit was set. The first set was obtained on these grafted trees. This year the set, up to date, is very heavy. The original seedling is a very heavy and alternate bearer. The outstanding aspect of this variety is its superior quality, which surpasses by far all known avocado varieties. Of each of the varieties described in this article, about 500 fruits were tested in the laboratory and a few hundred in the Division of Fruit and Vegetable Storage at the Volcani Institute.

SUMMARY

Three new varieties of avocado were selected in Israel. Due to the short period in which these varieties have been under examination, the number of tests and number of grafted bearing trees are not, as yet, sufficient to recommend them for planting on a commercial scale. However, the results obtained, to date, promise an interesting breakthrough in avocado production.

TABLE 1

<i>Characteristics</i>	<i>Tova</i>	<i>Netaim</i>	<i>Horshim</i>
Shape and size of the original tree	Round; 5m high, 5m diam. (16 years old)	10m high, 8m diam. (15 years old)	9m high, 5m diam. (13 years old)
Shape and size of grafted trees	5m high, 5m diam. (8 years old)	6m high, 6m diam. (7 years old)	6m high, 7m diam. (4 years old)
Yield	Excellent, no alternate bearing	Very high, alternate	Very high, alternate
Harvest period on a single tree	About 75 days	About 100 days	About 120 days
Ripening Season	November-March	February-June	November-April
Shape of fruit	Ovoid	Pear-shaped with broad neck	Pear-shaped with long neck
Color of fruit	Glossy, green	Dark green	Light green
Skin	Smooth, leathery, very easily peeled off	Leathery, pebbled with small warts	Thin (as Fuerte), pebbled with small warts.
Average weight (grams)	250	300	275
Taste and aroma	Fair to good	Good +	Excellent
Texture and color of flesh	Creamy, yellowish-cream	Creamy, dark yellowish-cream	Creamy, light yellow
Percentage of kernel	17	18	13
Percentage of oil during picking season	12-22	12-20	12-25
Special remarks	Needs the best growing conditions because of heavy yield characteristic		No darkening of fruit when open, and a pronounced nutty aroma