

## 5. VARIETIES, INTRODUCTIONS AND LOCAL SELECTIONS

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### **a. Variety Trials (Kubeiba and Bet Dagan; see section A. 3)**

In Kubeiba, during the last ten years, four varieties gave the following mean yields (in tons per dunam): Nabal 2.1, Anaheim 1.9, Fuerte 1.7 and Benik 1.5. Nabal outyielded Fuerte by 23%, compared to over 50% in the early years of the orchard. Mean yields are still rising in this orchard. The yield in the second five years of the ten-year period was higher than that in the first five years by nearly 50% for Anaheim and Benik, by 24% for Fuerte and by 18% for Nabal.

In the Bet Dagan orchard, planted in 1958, six varieties gave, over the last four years, the following mean yields (in tons per dunam): Nabal 2.8, Ettinger 1.8, Benik 1.8, Anaheim 1.7, Fuerte 1.5, and Hass 1.4. Nabal outyielded Fuerte by over 80%, but, in the light of experience in Kubeiba, this advantage will probably decline with increasing tree age.

Naturally, these results are representative only for the conditions of the trials — climate and soil of the southern part of the coastal plain, good to fair irrigation water, and Mexican and Guatemalan rootstocks.

Some remarks are needed as to the varieties:

**Ettinger:** Not present in Kubeiba. At Bet Dagan, typical of the general behavior in the country.

**Fuerte:** In spite of the fact that in both orchards other varieties outyielded Fuerte, its yields were superior to those of many other orchards in the country, and far better than average yields. Fuerte trees at Kubeiba, 20 years old, are in excellent condition and no tree thinning was needed, in spite of rather close planting.

**Anaheim:** This heavy-yielding variety is not approved for planting due to the low quality of its fruits.

**Benik:** This variety grows very big trees. In Kubeiba the yield was low; at Bet Dagan the fair yield was due mainly to one year out of the four and probably to heavy girdling carried out in that year.

**Nabal:** This variety was by far the most prolific in both orchards. Due to the very high yields, mean fruit weight was relatively low and this gave an uncommonly high percentage of first-grade fruit for export. In many orchards of the country, Nabal produces fruit too large for export and there is much breakage due to high winds; under such conditions it cannot be recommended. The variety is especially suitable for the relatively light soils of the southern part of the coastal plain.

**Hass:** Not present in Kubeiba. In Bet Dagan, yields were rather low and the fruit was mostly too small for export. This variety should not be grown on light soil. In other parts of the country, and on suitable soils, the variety is highly prolific — but the problem of its rather small fruit exists everywhere in Israel.

## **b. Introduction**

During the 1940s more than 40 varieties were introduced — chiefly from California and Florida. These varieties, together with a number of local selections, were grafted in the guard rows of the Bet Dagan trial orchard. Among them are ten Fuerte-like types from California. After thorough investigation of yields and fruit quality of these varieties, only one of them seems to us worthy of commercial trial under conditions similar to those at Bet Dagan. Some of the more promising varieties have been planted in other districts in order to determine whether any one of them will be particularly suitable for other conditions. This seems especially important for the Fuerte-like types, because the standard Fuerte is frequently a poor cropper in many parts of the country, and perhaps this may not be so for one or more of the Californian selections. One variety is being tried on a small commercial scale — Wurtz. This variety forms very small trees and gives Fuerte-like but much later ripening fruits of very good marketability. This variety can and has to be planted closely, but even with close planting is not certain to give commercially sufficient yields.

During the 1960s we brought to the country — again mostly from California, and, in small part, from Florida — another collection of 30 varieties, mostly selections from breeding projects. The trees are still too young for us to draw any conclusions regarding the results.

## **c. Local Selections**

From earlier selection work only the Ettinger is grown commercially. New work was started only during the late 1960s and the results given below are very tentative. We are looking for Fuerte-like types with high yield and ripening in different seasons, from fall to spring. Very early varieties which ripen before Ettinger, and very late varieties which could be grown instead of both Nabal and Hass, would be of special importance.

Several interesting types were found and they have been propagated and planted in trial orchards. Naturally, many years will be needed to make final evaluations regarding productivity and marketability, both for home and for export.

A short description of five of these types is given below:

**Tova:** The original seedling does not exist any more. About 30 mature budded trees are planted in different plots. The tree is of spreading type, and productivity is very high. The fruit ripens mostly within a short period — January/February. The fruit is green, pear-to egg-shaped, with a mean weight of 250 g. The fruit skin is smooth and of medium thickness. Taste is good. The seed weight is 17% of the fruit weight. Oil percentage rises from 14% to 22% during the ripening period.

**Horeshim:** The original seedling and 18 fruit-bearing budded trees exist. The tree is tall

and slender, with high but alternating yields. The fruit ripens between February and April. The fruit is green and Fuerte-like, but with a somewhat long neck. Mean weight of fruit is 250-300 g. The skin is Fuerte-like. Taste is very good. The seed weight is 13% of the fruit weight. Oil percentage rises from 13% to 25% during the ripening period.

**Netaim:** The original seedling and ten fruit-bearing budded trees exist. The tree is tall, with high but alternating yields. The fruit ripens between March and May. The fruit is green, broad pear-shaped, and has a mean weight of 300 g. The medium thick fruit skin is not altogether smooth. Taste is good to excellent. The seed weight is 18% of the fruit weight. Oil percentage rises from 13% to 20% during the ripening period.

**Shefayyim:** Only the original seedling is fruiting. The tree is of spreading type and very prolific. The fruit ripens between November and February, during the main Fuerte season. The fruit is green and Fuerte-like, with a mean weight of 300 g. The fruit skin is also Fuerte-like, and the taste is very good. The seed weight is 15% of the fruit weight. Oil percentage rises from 3% to 20% during the ripening period.

**Yehi'am:** Only the original seedling is bearing fruit. The tree is slender and prolific. The fruit ripens between January and March. It is green and Fuerte-like, and especially good looking, with a thin and glossy skin. The weight of the fruit is 300 g. Taste is very good. The seed weight is 15% of the fruit weight. Oil content rises from 13% to 19% during the ripening period.

Of the first three types, more than 300 budded trees were planted in 1969 in various regions. Of the last two types, plantings will be made, if at all, only after a year or two more of observations. A number of interesting early-ripening types have been found which will have to be compared with the early-ripening selections introduced from California.