

AVOCADO ROOTSTOCKS IN USE IN ISRAEL

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Contribution from the Agricultural Research Organization, The Volcani Center, Bet Dagan, Israel. 1975 Series, No. 244-E.

The avocado, which originates from Mexico and other Central American countries, is now widespread throughout the world; from a heterogeneous wild population in its native countries, a wide assortment of types strayed to various countries.

Avocado propagating material was first brought to Israel in the early 20th Century, particularly during the 20's and 30's. There is a need for a comprehensive survey of the various introduction stages over the years; however, such a historical study has not yet been undertaken. It is known that in addition to the introduction of several commercial avocado cultivars, some defined Mexican varieties and a few West Indian types were also brought. From this imported material the population of avocado stocks in Israel gradually developed, with the sowing of progressive generations of progeny.

The present article does not deal with the origin of the mother trees or the investigation of their ancestors, but is a summary of the avocado stock population in actual production in the country.

With the import of knowledge and experience as well as propagating material from California, stock of Mexican origin mainly, with their various varieties and seedlings, penetrated the Israeli market, and these were grown almost exclusively, until the late 1960's. Simultaneously, limited use was made of Guatemalan stock, especially the Nabal variety.

In the early 1960's, several commercial orchards were planted with trees grafted on different West Indian stock. Indeed, as early as 20 years previously, small plots had been planted with this stock in a number of places such as Degania and Gan Menashe. Toward the end of the 1960's the use of West Indian stock became increasingly popular, while plantations expanded to areas with alkaline soils and relatively saline irrigation water and the quality of the water in the 'classical' growing regions also deteriorated.

METHODS

Within the framework of a study dealing with the characteristics of avocado stocks, data were collected on fruit-bearing avocado orchards which kept records on the origin of the propagating material (2); in addition, avocado nurseries were surveyed in anticipation of

plantations specifically established and designed for experimental purposes (1).

Most of the data were collected during the years 1968-1974, with a constant survey of the sowings in the nurseries and the preparation of the saplings. Data were also collected in the orchards providing the stock seed. The exhaustive data collected, both from nurseries and plantations, facilitated the compilation of a comprehensive list of avocado stock in use in Israel. The full list was completed in summer 1974, updated for 31 March 1974.

The present article is a summary of the information contained in the list; it includes mother trees which provided seeds for stock in the past but are no longer in existence. However, this summary does not cover trees intended as a source of stock seed but which have not yet begun to yield.

RESULTS

An overall total of the stock found in the surveys is given in Table 1. This shows that the total number of mother trees, providing seeds for stock in Israel, is 1068, derived from 631 different origins (clones).

TABLE 1: OVERALL TOTAL OF THE AVOCADO STOCK POPULATION IN ISRAEL, AS OF MARCH 31, 1974.

The Source	<i>Mexican Stock</i>		<i>W. Indian Stock*</i>		<i>Total Stock</i>	
	Number of origins (clones)	Total number of mother trees	Number of origins (clones)	Total number of mother trees	Number of origins (clones)	Total number of mother trees
Varieties	7	68	6	61	13	129
Grafted seedling types			6	327	6	327
Individual seedlings	285	285	327	327	612	612
Total	292	353	339	715	631	1068

*Includes West Indian x Guatemalan hybrids.

CONCLUSIONS

There is a total of 1068 mother trees for stock seed production in Israel originating from 631 different clones. The list also includes trees which no longer exist, provided their progeny are kept under observation, but does not include trees which have not yet begun to yield. It is possible that one or another item on the list is not complete, but all the information available as of March 1974 is included.

The summary emphasizes the great diversity in seed propagation material in avocados. A difference was found between trees of Mexican and West Indian stock. Whereas, in the former, the mother trees are generally ungrafted seedlings dispersed over dozens of places, the mother trees of W. Indian stock include a large group grafted from various seedling types and concentrated at a few locations. Moreover, even those ungrafted trees which serve as seed stock are less diversified, and most of them are found in only a few orchards.

The plurality of stock origins has its positive aspects, up to a point, since it allows adaptation of characteristics to different growing conditions and different varieties, provided their extent allows them to be surveyed conveniently and listed. The present quantity of sources is extremely large and an effort should be made to limit it. It is suggested to continue to use lines from the following two groups of mother trees:

1. Trees whose seedlings are included as stocks in the stock/scion experiments, irrespective of their productivity.
2. Trees with satisfactory to highly satisfactory productivity, even if they have not yet been included in the stock/scion experiments. It is suggested to terminate the use of other sources and either to graft them to desirable stock types or to uproot them, in accordance with local conditions.

ACKNOWLEDGMENTS

The author wishes to thank Mrs. Esther Michaelson for her assistance in assembling the data and in compiling the list of stock, and Mr. I. Sela for collecting the data in the various orchards and up-dating the maps.

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