

A Note on Avocado Culture in New Zealand

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Records show that named varieties of avocado were first planted in New Zealand at Tauranga in 1919 (Rice, 1927 and Everett, 1937). Avocado culture has been attempted also at Kerikeri, Warkworth, Auckland, Thames, Gisborne, New Plymouth, Wanganui and Feilding. Of these localities, trees fruited only in Auckland, Thames, Tauranga and Gisborne, all situated in the northern portion of the North Island.

Climate and Soil

Many parts of the Auckland Province have a climate suitable for the avocado. In these areas the annual rainfall is 40 in. or more and frosts are light and infrequent. Tables I and II give data on frost occurrence and rainfall for three such localities.

It will be evident from a study of Table II that the rainfall is evenly distributed throughout the year. Therefore, on deep soils and with good management, drought should not be a limiting factor.

In other countries avocados are grown on soils ranging from light sand to heavy clay, but growth and cropping are most satisfactory on deep alluvial or well-drained upland soils. Rounds (1942) stated that the ideal soil for avocados is porous and well aerated. In this connection the well drained immature brown loams of volcanic origin found in Auckland and North Auckland may prove suitable. A few trees are making good growth on this type of soil at the Research Station of the Plant Diseases Division, Mt. Albert, Auckland. A chemical analysis of a brown loam at Mt. Albert is given in Table III (Burns, Taylor, Dixon and Hodgson, 1939).

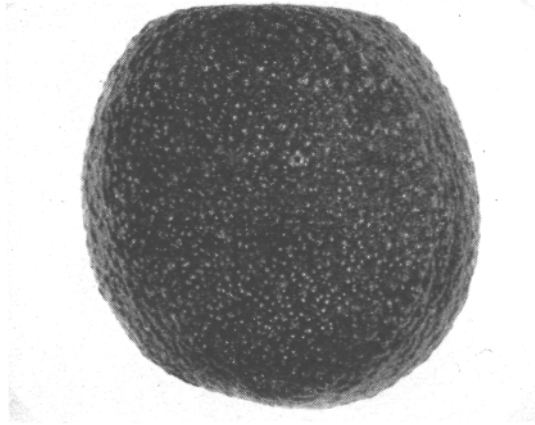


Fig. 1. An Avocado Fruit from Mr. Cameron's Seedling tree at Auckland. Two-thirds Natural Size.
Photo by M. J. Dahlberg

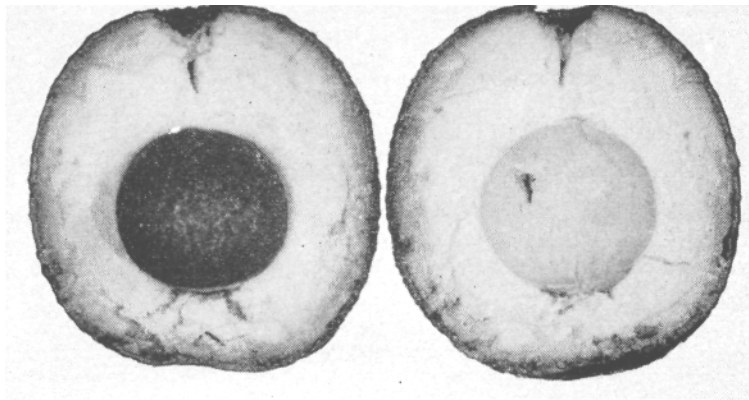


Fig. 2. Same Fruit in Fig. 1 cut longitudinally. One-half natural size.
Photo by M. J. Dahlberg

—Photograph by Miss M. J. Dahlberg.

Results of Avocado Planting in New Zealand

Available records of avocado culture in this country are summarized in Table IV.

Although he recorded fruiting of only three varieties, Everett (1937) reported profuse flowering of the other varieties in all places cited by him, with the exception of Kerikeri. In these instances failure of the trees to fruit may have been caused by lack of cross-pollination, which is essential for the setting of some varieties.

The planting of avocados in Auckland City has been recorded by the authors in Table IV. Further information on these trees is as follows:

Research Station, Plant Diseases Division

Three seedling trees, four years old, are growing well here, but have not yet flowered.

Auckland University College

A single tree, planted more than ten years ago, has not borne fruit.

Property of Mr. J. R. Cameron

In 1943 three healthy seedlings were observed here by the senior author. The largest was 12 years old, 22 feet in height and had a trunk diameter of 9 inches. This tree bore fruit at eight years.

Of the fruit Mr. Cameron wrote: "At the present moment it has 40 fruits which will ripen in November and December. The fruit is round, green, rough skinned but of a fine eating quality and flavour, weighing from 12 oz. to over a pound."

Fruit examined was of good shape for packing. The seed was small and enclosed tightly by a relatively thick layer of pulp (Figs. 1 and 2).

Mr. Cameron stated that the trees were raised from seed received from Mrs. G. Koppe of San Diego, California, U.S.A.

From the information available it appears probable that, on suitable soil and with adequate shelter, the avocado could be grown successfully in Auckland and other districts having a similar climate. Further trials of varieties, especially those of the Mexican race, should however precede planting on a commercial scale. The avocado also deserves attention as a tree for the home garden, because of its attractive appearance and the high nutritive value of its fruits.

Acknowledgment

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TABLE I*

Mean Number of Frosts in the Screen in Three Districts of Auckland Province

District	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Auckland	—	—	—	—	—	—	—	—	—	—	—	—	Nil
Tauranga	—	0.4	—	0.1	0.9	3.0	4.5	2.7	1.1	0.2	—	—	13.0
Gisborne	—	—	—	0.2	0.5	3.0	4.5	2.2	0.7	—	—	—	11.0

TABLE II*

Mean Monthly Rainfall (Inches) in Three Districts of Auckland Province

District	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Auckland (Henderson)	3.11	4.21	3.26	4.98	7.38	5.86	6.23	4.44	5.33	5.00	3.60	3.89	57.29
Gisborne (Patutahi)	2.59	3.42	4.22	3.30	4.50	3.74	4.30	3.65	2.92	2.53	1.87	2.17	39.19
Tauranga	4.09	3.64	3.99	4.71	5.13	5.28	4.95	4.20	4.28	5.17	3.33	3.51	52.28

TABLE III

Chemical Analysis of an Immature Brown Loam Soil, Mt. Albert, Auckland

Depth	Available		pH	Base Exchange Capacity	Total Exchange Bases	Base Satur- ation	Loss on Ignition	Clay
	K ₂ O	P ₂ O ₅						
in.	%	%		m.e. %	m.e.	%	%	%
0-8	0.062	0.008	5.0	45.2	8.8	19.5	18.1	55.7
8-15	0.023	0.002	5.7	33.3	7.2	21.6	14.2	58.4
15-22	0.019	0.001	5.8	34.6	7.8	22.5	13.6	76.5
29-35	0.009	Tr.	5.7	39.0	7.2	18.5	14.7	67.6

*Kidson, E., in Hamilton, W. M., (1937): "A Preliminary Survey of the Citrus Industry in New Zealand." Dept. of Sci. & Ind. Res. Bull. 53.

TABLE IV
Summary of Records of Avocado Culture in New Zealand

Localities where culture tried	Varieties	Owner	Authority
Tauranga†	—	J. H. Davidson	Rice, 1927
Warkworth	—	A. M. Shaw	Shaw, in Allison, 1930
Wanganui	Puebla Fuerte Spinks Dorothea Dutton Lyon Caliente Northrop Mayapan Nabal Duke Mexicola	A. Allison	Allison, 1930
Tauranga†	Lyon* Northrop Harmon Meserve	Dept. of Agriculture	Everett, 1937
Feilding	Fuerte	—	"
Thames†	Lyon seedling*	—	"
Gisborne†	Fuerte seedling? Fuerte seedling?*	—	"
New Plymouth	—	—	"
Kerikeri	—	—	"
Auckland†	—	J. R. Cameron	Li and Woodhead
Auckland	—	Auckland University	" "
Auckland	—	Plant Diseases Division, D.S.I.R.	" "

† indicates that trees fruited in locality
 * indicates fruiting variety.