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FURTHER EVIDENCE OF RESISTANCE TO PHYTOPHTHORA ROOT ROT OF AVOCADO

George A. Zentmyer and C. A. Schroeder
Plant Pathologist, University of California at Riverside; and
Associate Professor of Subtropical Horticulture, University of California at Los Angeles.

Two plots established under field conditions on the Riverside campus and on the Los Angeles campus of the University of California in 1954 are providing further evidence of resistance to Phytophthora root rot within the genus *Persea.* Within the first year after the establishment of these plots, severe disease symptoms appeared on a number of the test plants; this constitutes a preliminary report of the results to May, 1955.

The plot on the U.C.L.A. campus consists of 140 trees which were replanted in May, 1954, in an area where avocado trees were removed because of root rot. Trees were replanted in rows 6 feet apart, with individual plants 5 feet apart in the row. At the time of planting, 50 cc. of a wheat-oats inoculum *of Phytophthora cinnamomi* was placed in the bottom of each planting hole, to insure uniform inoculation of the resistance plot. Data were taken on the depth to the clay layer in each planting hole. The young trees have been watered in basins since the time of planting.

The plot on the Riverside campus consists of 61 trees which were planted in June, 1954—*Phytophthora cinnamomi* had also been present in the area in which these trees were replanted. The planting and inoculation program was similar to that described above, with the exception that the trees were watered by furrows.

Data taken on the U.C.L.A. plot at intervals to May, 1955, indicate high resistance in *Persea borbonia* and *P. Skutchii,* and appreciable resistance in cuttings from an outstanding Duke seedling developed in Zentmyer's resistance tests at Riverside. Cuttings from this material were made by Mr. E. F. Frolich, plant propagator on the U.C.L.A. campus. There was also indication of possible resistance, or perhaps of extremely vigorous growth, in two cuttings from the rootstock of a vigorous tree in Orange County (Scott tree), collected by Dr. Arthur Wallace. Unfortunately only two specimens of this clone were available at the time the plot was established; this is an insufficient number to give reliable information on resistance. Data from the U.C.L.A. plot are summarized in Table 1; it should be noted that these data are for the first year after planting.

Table 1. Preliminary results of tests for resistance to Phytophthora root rot of avocado in plot on U.C.L.A. campus.

Variety or Species	Number of Plants	Number of plants in various stages of disease[1]						Percent of plants resistant
		0	1	2	3	4	5	
Persea borbonia	10	10						100
Scott Cuttings	2	2						100[2]
Persea Skutchii	10	9		1				90
Duke cuttings	5	4			1			80
Persea schiedeana cuttings	8	2	2			1	3	25
Hass cuttings	5	1		1	1	1	1	20
Misc. Guatemalan seedlings	11	1	1	1	1	5	2	9
Persea indica	10	0	4	1	1	4		0
Ciudad Victoria OM	10	0	2		1	6	1	0
Ciudad Victoria PM	4	0	1			2	1	0
Persea schiedeana Orizaba seedlings	8	0		1			7	0
Topa-Topa	20	0			2	9	9	0
Ciudad Victoria WI	3	0			1	1	1	0
Persea floccosa	10	0			1	5	4	0
Persea americana H10 Honduras	10	0				9	1	0
Aguacate Mico	10	0				5	5	0
Persea gigantea	3	0					3	0

Data taken one year after establishment of plot.

[1]Stages of disease rated as follows: 0–healthy; 1–slight symptoms; 2–moderate symptoms; 3–moderately advanced symptoms; 4–severe symptoms; 5–dead.

[2]Insufficient number of plants to permit conclusions.

On the Riverside *plot Persea Skutchii, P. Borbonia,* and Duke seedlings are highly resistant to root rot in the first year of the plot. Data from this plot are presented in Table 2.

Table 2. Preliminary results of tests for resistance to Phytophthora root rot of avocado in plot on Riverside campus.

Variety or Species	Number of plants	Number of plants in various stages of disease						Percent of plants resistant
		0	1	2	3	4	5	
Duke seedlings	5	5						100
Persea borbonia	5	5						100
Persea Skutchii	10	9			1			90
Persea schiedeana	3	1				2		33
Ciudad Victoria PM	3	1			1	1		33
Persea americana H10	10	3	2	2	1	2		30
Persea indica	5	1	3	1				20
Persea floccosa	5	1	1		2	1		20
Topa-Topa	10	1			1	8		10
Aguacate Mico	5	0			1	4		0

Data taken 11 months after establishment of plot.

These preliminary field results confirm the results obtained in the root rot resistance testing program in the glasshouse and lathhouse at Riverside.