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...various families.

Classes of Resistance to Dothidella.							No. of Trees	Sporulat Lgt. Med.
3	4	5	6	7	8	9/10		
1	2	22	23	22	16	2	24	1

4	17	21	3	2	47
-	6	8	2	-	16
1	6	3	-	-	10
3	37	28	8	-	76
-	3	5	2	-	10

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A classification of the ...
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April 6-7, 1943

1938

A Classification of the Seedlings from the 1938 Crosses,
For their Resistance to South American Leaf Disease, Do-
thidella uliei; and Black Crust, Catacauma Huberi.

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On April 6-7, 1943, the 1364 seedlings from the 1938 crosses made at the Fordlandia estate of the Ford rubber plantations, were examined individually to determine their resistance to South American Leaf Disease (Dothidella uliei), and Black Crust (Catacauma Huberi). These seedlings are planted in Block 91, plot A, at Belterra estate at a regular field spacing.

The seedlings represent 22 crosses and in all of the combinations Ford clones were the female parents. Only two Eastern clones; PB-186 and false Av.49, were used as male parents. Five of the crosses are combinations with PB-186 and seventeen are in combinations with false Av.49.

Below are tables which illustrate the classification of the individual seedlings of each family, and the relative resistance of the various families.

Seedling Family	Classes of Resistance to Dothidella.									No. of Trees	Sporulation			Cat. Huberi		
	2	3	4	5	6	7	8	9/10	Lgt.		Med.	Hvy.	Lgt.	Med.	Hvy.	
F-328xAv.49	-	1	2	22	23	28	16	2		94	1	2	1	13	16	58
F-406xPB-186	-	-	1	2	4	2	1	-		10	1	1	-	4	2	2
F-170xAv.49	-	-	5	43	64	28	9	-		149	21	45	28	38	31	57
F-315xAv.49	1	-	8	11	12	18	2	-		52	4	6	10	9	6	21
F-351xAv.49	-	-	1	5	13	9	1	-		29	1	7	8	1	4	12
F-226xPB-186	-	-	2	1	4	2	-	-		9	1	2	3	3	3	1
F-208xAv.49	-	-	-	4	29	17	3	1		54	2	17	20	5	23	15
F-269xAv.49	-	-	-	1	3	144	141	55		344	4	49	148	40	134	129
F-370xAv.49	-	-	5	20	23	10	2	-		60	7	11	9	2	7	2
F-566xPB-186	-	-	-	4	17	21	3	2		47	6	15	19	2	1	1
F-681xPB-186	-	-	-	-	6	8	2	-		16	-	4	7	3	3	4
F-705xAv.49	-	-	-	1	6	3	-	-		10	2	3	2	-	1	-
F-707xAv.49	-	-	-	3	37	28	8	-		76	2	3	3	1	19	42
F-1071xAv49	-	-	-	-	3	5	2	-		10	-	1	6	3	1	6
F-1166xAv49	-	-	-	-	10	36	36	3		85	-	7	21	-	5	74
F-1214xAv49	-	-	-	-	7	28	24	8		67	3	9	34	13	29	19
F-316xAv.49	-	-	9	32	36	3	2	2		84	16	11	12	17	14	8
F-1276xAv49	-	-	-	-	2	9	9	6		26	1	1	3	2	7	15
F-1395xPB186	-	-	-	1	9	23	4	-		37	2	9	15	1	12	21
F-1706xAv.49	-	-	-	2	19	12	4	-		37	8	7	5	4	5	10
F-1792xAv.49	-	-	-	-	5	23	22	1		51	3	18	8	1	4	40
F-129xAv.49	-	-	1	1	10	3	1	1		17	4	3	1	1	6	8
Totals	1	1	34	153	342	460	292	81		1364	89	231	363	163	333	545

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From the above table it will be noted that of a total of 1364 seedlings examined, only one seedling (F-315 x Av.49) falls in class 2 on the Langford scale; while a single seedling (F-328 x Av.49) rates class 3 on this scale. There are 34 seedlings in class 4 and 153 fall into class 5. Only 36 seedlings or 2.49% of the total number rate class 4 or better under the present natural field conditions of inoculation. A total of 13.85% of the seedlings fall in class 5 or better. Under artificial inoculations the number of really resistant seedlings probably would be reduced somewhat.

Those seedling families exhibiting the highest apparent resistance to South American Leaf Disease among their seedlings, are listed below with the percentages of the total number of seedlings in each family, falling into each of the first five disease resistance categories. The two families giving the highest percentage of seedlings in class 4 or better are: F-226 x PB-186 and F-315 x Av.49. If we shift this scale to include the families giving the highest percentage of seedlings in class 5 or better, we find that the 3 best families are: F-316 x Av.49, F-570 x Av.49, and F-315 x Av.49.

Seedling Family	Resistance Class					Percentage Total Classes 1-5
	1	2	3	4	5	
F-316 x Av49	-	-	-	10.7%	38.1%	48.8%
F-570 x Av49	-	-	-	8.3	33.3	41.6
F-315 x Av49	-	1.9%	-	15.4	21.2	38.5
F-226xPB-186	-	-	-	22.2	11.1	33.3
F-170 x Av49	-	-	-	3.3	28.9	32.2
F-406 xPB186	-	-	-	10.0	20.0	30.0
F-328 x Av49	-	-	1.06%	2.1	23.44	26.6

Slightly more than half (50.1%) of the seedlings examined, showed some sign of sporulation by SALD; in 26.6% of the seedlings sporulation was heavy. In the table following, we have listed the 7 families which have the highest percentage of resistant seedlings, to illustrate the amount of sporulation found on the seedlings of these families. In addition to these 7 families there are 3 other crosses which, although they do not have many outstanding seedlings, have low percentages of sporulation. They are: F-707 x Av.49, F-1276 x Av.49, and F-1168 x Av.49.

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Seedling Family	Sporulation by SALD			Percentage Total Trees Sporulating.
	Light	Medium	Heavy	
F-316xAv.49	19.0%	13.1%	14.3%	46.4%
F-570xAv.49	10.2	18.3	16.5	45.0
F-315xAv.49	7.7	11.5	19.3	38.5
F-226xPB.186	11.1	22.2	33.3	66.6
F-170xAv.49	14.1	30.2	18.8	63.1
F-406xPB186	10.0	10.0	---	20.0
F-328xAv.49	1.06	2.13	1.06	4.25
F-707xAv.49	2.6	3.5	3.5	9.6
F-1166xAv.49	---	8.2	24.7	32.9
F-1276xAv.49	3.8	3.8	11.5	19.1

A strikingly large percentage of the seedlings have been attacked to some extent by *Catacauma Huberi* (Black Crust). A total of 76.3% of the trees were marked by this disease. In 39.9% of the cases the attacks have been so severe as to cause reddening of the leaves and defoliation ranging from light to heavy. Below, we have again listed the seven crosses which have provided the highest percentages of resistant seedlings. This time the percentage of infection by Black Crust on the seedlings of these families, are shown.

Seedling Family	<i>Catacauma Huberi</i>			Percentage Total Trees Infected.
	Light	Medium	Heavy	
F-316xAv.49	20.2%	16.6%	9.6%	46.4%
F-570xAv.49	3.3	11.7	3.3	18.3
F-315xAv.49	17.3	11.5	40.4	69.2
F-226xPB-186	33.3	33.3	11.2	77.8
F-170xAv.49	25.5	20.8	38.2	84.5
F-406xPB-186	40.0	20.0	20.0	80.0
F-328xAv.49	13.8	17.0	61.7	92.5

The following table is a summary of the three previous tables classifying some of the seedling families for resistance to disease, sporulation by SALD, and incidence of *Catacauma Huberi*. Although these families have seedlings of outstanding resistance to SALD, there are others which are very poor in resistance to SALD and *Catacauma*. When considering the family as a unit, the percentage of seedlings with sporulation by SALD and infected by

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Catacauma are high. The crisses F-406 x PB-186 and F-328 x Av.49 give a fair percentage of seedlings which fall into resistance classes 1-5. Both of these families have less sporulation by SADD among their seedlings than have the others, but in both of them the incidence of Catacauma is very high. Seedlings of the cross F-570 x Av.49 are mosr resistant to the attacks of Catacauma Huberi.

Under certain climatic conditions the attacks of Catacauma Huberi may be very severe, causing heavy to complete defoliation of the trees. Such defoliations may result in die-back similar to that caused by heavy attacks of South American Leaf Disease. In the work of greeding and selection it will be advisable to discard material which proves to be extremely susceptible to this disease.

Seedling Family	Seedlings in Classes 1-5 for Resistance to SADD	Seedlings Sporulating with SADD	Seedlings Attacked by Catacauma Huberi
F-316xAv49	48.8%	46.4%	46.4%
F-570xAv49	41.6	45.0	18.3
F-315xAv49	38.5	38.5	69.2
F-226xPB186	33.3	66.6	77.8
F-170xAv49	32.2	63.1	84.5
F-406xPB186	30.0	20.0	80.0
F-328xAv49	26.6	4.25	92.5

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April 22, 43.
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