

C A M C O R E

ANOVA AND MULTIPLE COMPARISONS FOR PROVENANCE AND FAMILY VOLUME

EIGHT YEAR MEASUREMENTS

TEST IDENTIFICATION: 04-02-01A
SPECIES: Pinus tecunumanii
COMPANY: Cartón de Colombia
SITE NAME: Salinas
ELEVATION: 2500 m
ANNUAL PRECIPITATION: 2300 mm

DATE PLANTED: May 1982
DATE MEASURED: November 1989

ANALYSIS OF VARIANCE

DEPENDENT VARIABLE: Eight Year Volume (cubic meters)

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>F</u> <u>VALUE</u>
REP	8	0.01556291	0.51 ns
PROV	5	0.21209840	11.04 **
REP*PROV	37	0.14213559	1.37 ns
FAM(PROV)	19	0.14649288	2.74 **
REP*FAM(PROV)	151	0.42452843	1.22 ns
ERROR	764	1.76562379	

CORRECTED TOTAL 984 2.74911898

ns: Not significant

** Significant at $p < .01$

TEST MEAN C.V. (%)
0.11667 m³ 41.20

***** MEANS BY PROVENANCE *****

WALLER-DUNCAN MULTIPLE COMPARISONS FOR EIGHT YEAR PROVENANCE VOLUME

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

<u>Waller</u>	<u>Grouping</u>	<u>Mean</u>	<u>N</u>	<u>Provenance</u>	
	A	0.12531	45	* Control	(203)
	A				
	A	0.12399	435	San Jeronimo	(1)
	A				
	A	0.11681	401	San Lorenzo	(2)
	A				
B	A	0.10882	40	* Control	(200)
B					
B		0.08996	35	* Control	(202)
	C	0.03461	29	* Control	(201)

* Control lots: 200 = Pinus tecunumanii, San Jeronimo, Guatemala
 201 = Pinus oocarpa, Chiquimula, Guatemala
 202 = Pinus oocarpa, Mt. Pine Ridge, Belize
 203 = Pinus oocarpa, Guatemala

***** MEANS BY FAMILY *****

<u>Fam</u>	<u>Prov</u>	<u># Trees</u>	<u>% Surv</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>	<u>Mean Diameter (cm)</u>	<u>Tree Volume (cubic m)</u>
95	1	50	92.59	10.77	11.85	20.76	0.14419
19	1	44	81.48	10.62	11.10	20.48	0.14127
3	2	43	79.63	10.02	19.67	20.86	0.13762
86	1	42	77.78	10.24	16.16	19.97	0.13209
47	2	41	75.93	10.25	15.35	20.10	0.13152
8	2	28	51.85	10.31	14.19	20.10	0.13091
101	1	47	87.04	10.44	13.71	19.76	0.12910
9	2	41	75.93	10.36	17.54	19.31	0.12689
203	*	45	83.33	10.25	17.76	19.41	0.12531
102	1	41	75.93	9.76	14.59	19.75	0.12133
14	2	39	72.22	10.14	13.87	19.52	0.11904
1	2	43	79.63	9.66	15.47	19.64	0.11822
103	1	45	83.33	10.20	14.51	18.87	0.11817
99	1	37	68.52	9.92	13.43	19.17	0.11737
100	1	43	79.63	9.50	18.95	19.76	0.11618
4	2	27	50.00	9.56	11.95	18.80	0.11064
44	2	30	55.56	9.34	17.06	19.03	0.11028
84	1	49	90.74	9.55	21.98	18.87	0.10951
200	*	40	74.07	9.89	21.56	18.14	0.10882
10	1	37	68.52	9.92	19.40	18.00	0.10535
135	2	37	68.52	9.21	16.11	18.67	0.10391
6	2	34	62.96	9.61	19.17	18.09	0.10245
202	*	35	64.81	9.25	15.13	17.31	0.08996
7	2	38	70.37	9.18	18.59	16.71	0.08721
201	*	29	53.70	6.83	21.98	12.01	0.03461

OVERALL		836	73.72	9.96	16.54	19.40	0.12055
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Note: Tree volume with bark was calculated using a formula for juvenile trees: Volume (cubic meters) = $0.0003 \cdot D^2 \cdot H$, where D=DBH in centimeters and H = total height in meters.

The overall mean does not include control lots.

Provenance code: 1 = San Jeronimo, Guatemala
2 = San Lorenzo, Guatemala