

C A M C O R E

ANOVA AND MULTIPLE COMPARISONS FOR PROVENANCE AND FAMILY VOLUME

FIVE YEAR MEASUREMENTS

TEST IDENTIFICATION: 13-02-06A
SPECIES: Pinus tecunumanii
COMPANY: Cartón de Colombia
SITE NAME: Finca San Jose
ELEVATION: 1750 m
ANNUAL PRECIPITATION: 1949 - 2060 mm

DATE PLANTED: October 1984
DATE MEASURED: August 1989

ANALYSIS OF VARIANCE

DEPENDENT VARIABLE: Five Year Volume (cubic meters)

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>F VALUE</u>
REP	8	0.02241175	1.17 ns
PROV	4	0.05783182	6.05 **
REP*PROV	32	0.07644453	1.40 ns
FAM(PROV)	24	0.13496829	3.29 **
REP*FAM(PROV)	192	0.32773244	1.11 ns
ERROR	1224	1.88863300	
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CORRECTED TOTAL	1484	2.52064217	

ns: Not significant

** Significant at $p < .01$

TEST MEAN
0.08979 m³

C.V. (%)
43.75

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

WALLER-DUNCAN MULTIPLE COMPARISONS FOR FIVE 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	0.09540	365	Chempil
	A			
	A	0.09469	360	Jitotol
	A			
B	A	0.08977	50	* Control
B	A			
B	A	0.08943	360	Montebello
B				
B		0.07925	350	Las Piedrecitas

Provenance code: 11 = Chempil, Mexico
 13 = Jitotol, Mexico
 15 = Las Piedrecitas, Mexico
 16 = Montebello, Mexico

* Control lot: 200 = Commercial control, P. tec., San Jeronimo, 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>D.B.H. (cm)</u>	<u>Tree Volume (cubic m)</u>
430	13	50	92.59	11.1	13.78	17.74	0.10986
370	11	53	98.15	11.0	15.37	17.67	0.10773
424	13	51	94.44	11.0	11.92	17.56	0.10543
375	16	51	94.44	10.0	21.76	18.09	0.10352
415	13	54	100.00	11.0	16.46	17.27	0.10264
369	11	51	94.44	10.8	20.30	17.21	0.10101
356	11	54	100.00	10.5	23.63	16.76	0.09873
393	16	50	92.59	10.2	19.93	17.47	0.09713
373	11	51	94.44	10.6	22.25	16.81	0.09551
412	13	50	92.59	10.2	19.04	16.85	0.09301
371	11	54	100.00	10.2	20.04	16.80	0.09297
322	15	50	92.59	10.5	19.81	16.73	0.09199
397	16	52	96.30	10.2	21.08	16.84	0.09153
392	16	53	98.15	9.90	24.38	16.80	0.09147
372	11	51	94.44	10.5	17.61	16.32	0.09108
323	15	49	90.74	10.2	17.96	16.55	0.09025
427	13	51	94.44	10.0	20.03	16.79	0.09023
200	99	50	92.59	10.2	20.33	16.59	0.08977
314	15	48	88.89	9.93	21.83	16.48	0.08901
389	16	51	94.44	9.88	25.45	16.25	0.08756
321	15	51	94.44	10.3	15.49	16.01	0.08329
422	13	52	96.30	9.55	23.51	16.22	0.08227
348	11	51	94.44	10.3	19.24	15.53	0.08021
426	13	52	96.30	9.75	24.77	15.82	0.07974
403	16	53	98.15	9.99	22.53	15.32	0.07756
382	16	50	92.59	9.37	26.83	15.75	0.07753
308	15	51	94.44	9.83	19.79	14.99	0.07409
317	15	53	98.15	9.80	20.94	14.36	0.06724
309	15	48	88.89	9.24	23.55	13.75	0.05945

OVERALL	1435	94.91	10.21	20.75	16.46	0.08979
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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.