

C A M C O R E

ANOVA AND MULTIPLE COMPARISONS FOR PROVENANCE AND FAMILY HEIGHT

THREE YEAR MEASUREMENTS

TEST IDENTIFICATION: 09-02-03A
SPECIES: Pinus ayacahuite
COMPANY: Carton de Colombia
SITE NAME: Peñas Negras
LATITUDE: 2° 15' N
LONGITUDE: 71° 31' W
ELEVATION: 2490 m
ANNUAL PRECIPITATION: 2500 mm

DATE PLANTED: December 1986
DATE MEASURED: November 1989

ANALYSIS OF VARIANCE

DEPENDENT VARIABLE: Three Year Height (meters)

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>F</u> <u>VALUE</u>
REP	8	28.59855034	4.82 **
PROV	7	215.06388876	41.46 **
REP*PROV	56	41.49422227	2.49 **
FAM(PROV)	45	41.55705201	3.11 **
REP*FAM(PROV)	347	103.11737346	1.75 **
ERROR	1692	287.18879167	
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CORRECTED TOTAL	2155	768.61202690	

** Significant at $p < .01$

TEST MEAN	C.V. (%)
1.339 m	30.78

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

WALLER-DUNCAN MULTIPLE COMPARISONS FOR THREE YEAR PROVENANCE HEIGHT
 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	3.042	50	*Control Pat.	(998)
	B	2.404	50	*Control Max.	(997)
	C	1.471	50	*Control Ooc.	(999)
	C				
D	C	1.300	457	Buenavista Villaflor	(3)
D	C				
D	C	1.298	516	Arcotete	(2)
D	C				
D	C	1.259	590	Las Trancas	(8)
D					
D		1.208	399	Plan de Ranch	(9)
D					
D		1.161	44	Chuipachec	(5)

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

<u>Family</u>	<u>Provenance</u>	<u># Trees</u>	<u>% Survival</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>
998	*	50	92.59	3.04	15.15
997	*	50	92.59	2.40	25.95
232	8	40	74.07	1.63	39.10
137	2	42	77.78	1.61	35.71
262	9	48	88.89	1.52	34.30
154	3	44	81.48	1.52	32.36
234	8	43	79.63	1.50	42.78
163	3	44	81.48	1.49	34.26
258	9	40	74.07	1.49	32.16
999	*	50	92.59	1.47	24.53
143	2	43	79.63	1.43	47.43
231	8	29	53.70	1.41	35.28
138	2	51	94.44	1.39	34.54
160	3	44	81.48	1.38	40.09
213	8	34	62.96	1.37	41.47
158	3	36	66.67	1.36	36.71
140	2	44	81.48	1.36	32.43
171	3	45	83.33	1.35	33.73
263	9	41	75.93	1.35	33.35
142	2	48	88.89	1.34	40.30
156	3	40	74.07	1.31	40.51
153	3	44	81.48	1.31	40.52
211	8	40	74.07	1.30	37.53
146	2	46	85.19	1.30	39.72
139	2	50	92.59	1.30	33.48
214	8	41	75.93	1.28	38.38
236	8	35	64.81	1.28	39.77
166	3	34	62.96	1.27	34.00
280	9	44	81.48	1.25	39.26
216	8	39	72.22	1.24	42.74
134	2	45	83.33	1.24	41.79
227	8	44	81.48	1.21	42.63
136	2	46	85.19	1.21	33.06
217	8	37	68.52	1.19	34.73
240	8	30	55.56	1.19	41.27
221	8	34	62.96	1.16	41.77
7	5	44	81.48	1.16	36.04
170	3	43	79.63	1.15	35.85
147	2	33	61.11	1.12	43.22
219	8	32	59.26	1.12	38.92
260	9	50	92.59	1.12	47.13

<u>Family</u>	<u>Provenance</u>	<u># Trees</u>	<u>% Survival</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>
132	2	44	81.48	1.12	33.19
229	8	39	72.22	1.11	45.38
270	9	45	83.33	1.10	30.63
268	9	46	85.19	1.09	42.54
165	3	36	66.67	1.07	51.70
152	3	47	87.04	1.06	36.00
238	9	38	70.37	1.05	35.04
223	8	39	72.22	1.04	43.11
273	9	39	72.22	1.00	42.38
141	2	24	44.44	0.99	39.05
278	9	42	77.78	0.98	35.25

OVERALL		2006	75.81	1.27	40.20
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The overall mean does not include control lots.

Provenance code: 2 = Arcotete, Mexico
 3 = Buenavista Villaflor, Mexico
 5 = Chuipachec, Guatemala
 8 = Las Trancas, Honduras
 9 = Plan de Ranch, Honduras

* Control lots: 997 = Pinus maximinoi, Guatemala
 998 = Pinus patula, South Africa
 999 = Pinus oocarpa, Guatemala