

C A M C O R E

ANOVA AND MULTIPLE COMPARISONS FOR PROVENANCE AND FAMILY HEIGHT

THREE YEAR MEASUREMENTS

TEST IDENTIFICATION: 15-03-09B
SPECIES: Pinus maximinoi
COMPANY: Cartón de Venezuela
SITE NAME: Ospino
LATITUDE: 9° 10' N
LONGITUDE: 69° 20' W
ELEVATION: 150 m
ANNUAL PRECIPITATION: 1123 - 1916 mm

DATE PLANTED: July 1986
DATE MEASURED: July 1989

ANALYSIS OF VARIANCE

DEPENDENT VARIABLE: Three Year Height (meters)

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>F VALUE</u>
REP	8	59.42190234	2.49 *
PROV	6	6.97320961	0.39 ns
REP*PROV	47	140.24957084	4.25 **
FAM(PROV)	55	42.08485319	1.09 ns
REP*FAM(PROV)	412	289.05616539	1.45 **
ERROR	1194	577.49583333	
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CORRECTED TOTAL	1722	1234.67625073	

ns: Not significant

* Significant at $p < .05$
** Significant at $p < .01$

TEST MEAN
3.18 m

C.V. (%)
21.84

15-03-09B

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

The Waller-Duncan multiple comparison procedure shows no significant differences among the mean provenance heights.

<u>Provenance</u>	<u># Trees</u>	<u>% Survival</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>	<u>Mean D.B.H. (cm)</u>
La Cañada	55	50.93	3.3	25.44	3.9
Tapiquil	447	51.74	3.3	24.28	3.8
San Juan	80	49.38	3.2	26.74	3.6
San Jeronimo, Mex.	362	60.94	3.2	24.33	3.7
Dulce Nombre	402	46.53	3.2	28.30	3.5
San Jeronimo, Guat.	28	51.85	3.1	26.40	3.4
Valle De Angeles	349	49.72	3.1	29.72	3.3

* No control lots were used in this project.

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

<u>Family</u>	<u>Prov</u>	<u># Trees</u>	<u>% Survival</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>	<u>Mean D.B.H. (cm)</u>
352	4	17	31.48	3.6	28.26	4.5
310	6	22	40.74	3.5	22.99	3.9
482	6	29	53.70	3.5	24.12	4.1
316	6	29	53.70	3.5	21.57	4.3
314	6	30	55.56	3.5	22.71	4.0
321	6	26	48.15	3.4	18.85	4.3
294	6	28	51.85	3.4	21.19	4.0
339	4	19	35.19	3.4	31.10	3.7
479	9	33	61.11	3.4	20.89	3.9
39	3	27	50.00	3.4	27.14	3.7
475	9	40	74.07	3.4	23.02	3.9
452	12	28	51.85	3.4	26.32	4.2
361	4	33	61.11	3.4	20.81	3.9
290	6	38	70.37	3.4	24.33	3.8
309	6	15	27.78	3.4	20.99	3.9
458	9	25	46.30	3.4	24.10	3.9
433	14	28	51.85	3.4	26.78	3.8
347	4	24	44.44	3.3	25.44	3.8
298	6	30	55.56	3.3	20.92	3.8
424	14	28	51.85	3.3	32.95	3.7
50	3	28	51.85	3.3	26.41	3.7
420	14	30	55.56	3.3	24.77	3.8
470	9	38	70.37	3.3	23.22	3.8
464	9	34	62.96	3.3	22.75	4.0
317	6	29	53.70	3.3	27.53	4.0
362	4	27	50.00	3.2	23.97	3.6
360	4	32	59.26	3.2	28.01	3.5
355	4	26	48.15	3.2	36.09	3.5
446	12	27	50.00	3.2	24.65	3.6
376	4	24	44.44	3.2	22.74	3.3
478	9	35	64.81	3.2	19.24	3.8
375	4	18	33.33	3.2	31.46	3.7
419	14	26	48.15	3.2	27.68	3.4
295	6	24	44.44	3.2	22.82	3.8
395	14	30	55.56	3.2	25.84	3.5
292	6	31	57.41	3.2	26.00	3.3
469	9	29	53.70	3.1	30.90	3.5
78	2	28	51.85	3.1	26.40	3.4
477	9	32	59.26	3.1	22.82	3.5
357	4	38	70.37	3.1	28.60	3.5
358	4	29	53.70	3.1	26.65	3.5

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

<u>Family</u>	<u>Prov</u>	<u># Trees</u>	<u>% Survival</u>	<u>Mean Height (m)</u>	<u>C.V. (%)</u>	<u>Mean D.B.H. (cm)</u>
434	14	24	44.44	3.1	33.99	3.1
430	14	24	44.44	3.1	36.37	3.4
350	4	26	48.15	3.1	31.40	3.1
480	9	36	66.67	3.1	26.08	3.4
476	9	29	53.70	3.1	29.72	3.5
323	6	34	62.96	3.1	24.15	3.7
465	9	31	57.41	3.0	26.36	3.4
304	6	36	66.67	3.0	30.02	3.2
46	3	25	46.30	3.0	25.98	3.3
426	14	30	55.56	3.0	27.20	3.4
343	4	17	31.48	3.0	38.80	3.2
348	4	21	38.89	3.0	24.39	3.2
435	14	22	40.74	3.0	27.73	3.3
305	6	19	35.19	2.9	17.42	3.3
437	14	34	62.96	2.9	31.10	3.2
341	4	28	51.85	2.8	33.16	3.0
394	14	28	51.85	2.8	27.85	3.1
338	4	23	42.59	2.8	19.06	2.7
293	6	27	50.00	2.8	28.25	3.2
412	14	24	44.44	2.7	28.75	2.7
411	14	21	38.89	2.6	29.96	2.6

OVERALL	1723	51.46	3.2	26.59	3.6
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The overall values do not include control lots.

Provenance code: 2 = San Jeronimo, Guatemala
 3 = San Juan Sacatepequez, Guatemala
 4 = Dulce Nombre De Copan, Honduras
 6 = Tapiquil, Honduras
 9 = San Jeronimo (Chiapas), Mexico
 12 = La Cañada, Mexico
 14 = Valle De Angeles, Honduras