Potential of Queensland-bred pine hybrids in subtropical midlands of Parana State, Brazil

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Abstract

Two tests of Queensland-bred pine hybrids and local controls were planted by Klabin Fabricadora de Papel e Celulose SA in the subtropical midlands of Parana, Brazil.

The QEH (i.e. the *P.elliottii* X *P.c.hondurensis* F_1 hybrid), in one of the tests and its backcross to *P.caribaea* var. *hondurensis* (H) have high potential to increase local plantation yields.

Introduction

Klabin Fabricadora de Papel e Celulose SA has established and manages a large and increasing estate of Southern pines (*P.taeda* and *P.elliottii*) and eucalyptus in Parana (*E.grandis*, *E.dunnii* and *E.saligna*) to supply wood to its pulpmill and to other multipurpose uses. It is desired to secure larger, sustainable yields of high quality wood at lower costs. With these aims, trials of Queensland-bred pine hydrids have been established. They were planted in 1992 and 1993 at Telêmaco Borba, subtropical midlands of Parana, Brazil (lat. 24°) on good sites. The Australian hybrids were compared in both tests to *P.elliottii* (local seed production area). This paper reports on the earlier growth of these trials. The 38 months growth and stem quality of the hybrid results (P.e.e. x P.c.h.) in the first test was very outstanding. The comparison between hybrid and controls in the first test is shown in Table 1.

Table 1 - Mean total height (m) and mean diameter DBH(cm) at 31 months and 38 months

	31 months		38 months	
Hybrid/species	**DBH (cm)**	**Height (m)**	**DBH (cm)**	**Height (m)**
P.e.e. x P.c.h.	9,58a	4,87a	12,47a	5,95a
P.e.e. (Australian Control)	6,02b	3,66b	9,09b	4,60b
P.e.e. (Local Control)	3,73c	2,30c	6,39c	3,28c

Tukey statistical comparison. Means within a column followed the same letter are not significantly different at P = 0,05.

The hybrid P.e.e. x P.c.h. was superior in height to both controls (29% and 81% superiority) at 38 months confirming the earlier result.

It also had great diameter (37% and 95% superiority) so P.c.c. x P.c.h. has considerable superiority in volume. If P.e.e. x P.c.h. maintains the cold hardiness shown in 1994 frost, with very low frost damage, it will give substantial gains in productivity in the sites where P.e.e. are planted.

The second trials tested the hybrid P.c.h. x P.tec and the backcross (P.e.e. x P.c.h.) x P.c.h. They were compared to both parental species (Australian P.c.h. and local P.e.e.).

The earlier growth of this trial is shown in Table 2.

Table 2 - Mean total height (m) and mean diameter (DBH) at 14 months and 37 months.

	14 months	**37 months**	
Hybrid/species	**Height (m)**	**DBH**	**Height (m)**
P.c.h. x P.tec.	2,02a	7,75ab	4,49ab
(P.c.h. x P.e.e.)x P.c.h.	1,95a	9,91a	5,39a
P.c.h. (Australia)	1,59b	6,51b	3,85b
P.e.e. (Local)	1,18c	6,40b	3,77b

In this trial the hybrid P.c.h. x P.tec. was very outstanding at 14 months, but the 1994 frost had damaged it very seriously.

In 1996 measurement, with 38 months it was possible to conclude that backcross (P.c.h. x P.e.e.) to P.c.h. have high potential to increase local plantation yields.