PROVENANCE VARIATION IN WOOD PROPERTIES OF *PINUS CARIBAEA* VAR. *HONDURENSIS*

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ABSTRACT

Variation in the densitometric traits of wood density (DEN) and within-sample density variation (VAR) of 11 provenances of *Pinus caribaea* var. *hondurensis* Barr. and Golf. at 11 sites was studied. The analysis of variance revealed significant differences (p 0.001) between sites and provenances for DEN and VAR, with site accounting for more of the variance than provenance. The site × provenance interaction term was not statistically significant and accounted for none of the variance. Thus, provenances were consistently ranked for DEN and VAR regardless of site. The lowest values for DEN and VAR were at sites with higher altitude (1000 m). Coastal provenances were generally lower for DEN and VAR than inland provenances but these differences were not significant.

Keywords: wood density; within-sample density variation; genotype × environment interaction; climatic and geographic parameters; *Pinus caribaea* var. *hondurensis*.

INTRODUCTION

International provenance trials of *Pinus caribaea* Morelet, co-ordinated by the Oxford Forestry Institute (OFI) and funded principally by the Overseas Development Administration of the British Government, have been established in more than 400 locations in 49 countries. Previous assessments of these trials with respect to survival, growth, yield, and form traits have resulted in an increased awareness of the afforestation potential of this species and many countries have established breeding programmes. Variation in many of the external morphological characteristics due to provenance and/or site have been well documented (Barnes *et al.* 1983; Gibson *et al.* 1983; Gibson 1982) but the wood properties have been studied less intensively (Cown *et al.* 1983; Plumptre 1984). These properties are of critical importance since the wood from fast-grown plantations of exotic conifers may not satisfy the product standards of domestic or international markets.

In 1983, an intensive assessment of wood properties of *P. caribaea* var. *hondurensis* was begun using the Joyce-Loebl micro-densitometer at the OFI. The purpose of this work was to determine the following.

(1) Variation in densitometric density (DEN) and within-sample density variation (VAR) due to site and provenance;

(2) Extent and nature of genotype × environment interaction in DEN and VAR from an orthogonal set of sites and provenances.

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