Monoterpene Composition and Fusiform Rust Resistance in Slash Pine

M. Michelozzi
A. **E. Squillace**
T. L. White

Abstract. Cortical monoterpene composition was determined for 43 relatively-resistant and 42 relatively-susceptible slash pine clones selected on the basis of their fusiform rust resistance breeding values. Fifty-seven percent of the clones having high proportions of ß-phellandrene were relatively resistant, while only 15 percent of the low ß-phellandrene clones were relatively resistant, Reasons for the relationship are not clear, but presence of the high ß-phellandrene gene may be linked with other traits more directly involved with resistance. Certain combinations of monoterpenes , including particular minor constituents, may be moreindicative of resistance than ß-phellandrene alone, but further work is needed. For the present, tree improvement workers should consider determining monoterpene composition of candidate trees prior to progeny testing, and culling trees with low ß-phellandrene content.

Additional Key Words: α-phellandrene, α-pinene, β-phellandrene, β-pinene, camphene, *Cronartium quercuum* f. sp. *fusiforme*, limonene, myrcene, *Pinus elliottii* var. *elliottii*, *P. taeda*, sabinene.

Authors are Researcher, Istituto Miglioramento Genetico Piante Forestall CNR, Via S. Bonaventura, 13 - 50145 Firenze, Italy; Retired Plant Geneticist, USDA Forest Service and Adjunct Professor, School of Forest Resources and Conservation, University of Florida, Gainesville, FL 32611; and Associate Professor, Department of Forestry, University of Florida. Authors gratefully acknowledge the kind assistance of Dr. Jon D. Johnson, the Messrs. Harm Kok, Michael P. Popp, Esam E. Warrag, and others In various phases of this study.