

ADJUSTMENTS OF FIXED, WITH WEIGHTING AND MIXED NON-LINEAR MODELS –APPLICATIONS

Lídia Raquel de CARVALHO¹
Glauber Márcio Silveira PEREIRA¹
Helenice de Oliveira Florentino SILVA¹
Martha Maria MISCHAN¹
Edson Luiz FURTADO²

- **ABSTRACT:** *Nonlinear models tend to be used when it is suggested by theoretical considerations or by non-linear behavior. Even when a linear approximation is acceptable, a non-linear model can also be used to obtain a clear understanding of the parameters. The objective of this research was: to study of logistics, Gompertz, von Bertalanffy and Richards functions with adjustments in three structures: the fixed effects model, the weighting and mixed effects model adjusted to data of volume of the trunk of Eucalyptus grandis, from three growing regions belonging to Votorantim Celulose e Papel. The criteria used for the selection of models were: Error mean square, Akaike information criterion, Akaike weight, Schwarz Bayesian Information Criterion, Breusch-Pagan test and squared correlation coefficient. The model with weighting was the most appropriate. In the choice of the best function, Gompertz was the one that proved better, second was Richards.*
- **KEYWORDS:** *non-linear models, mixed effects models, weighted models, growth curves, longitudinal data.*

¹ Universidade Estadual Paulista - UNESP, Instituto de Biociências - IBB, Departamento de Bioestatística, CEP: 18610-970, Botucatu, São Paulo, Brasil. E-mail: lidiarc@ibb.unesp.br; glaubernsp@gmail.com; helenice@ibb.unesp.br; mmischan@ibb.unesp.br

² Universidade Estadual Paulista - UNESP, Faculdade de Ciências Agrônomicas, Departamento de Proteção Vegetal, CEP: 18610-307, Botucatu, SP, Brasil. E-mail: elfurtado@fca.unesp.br