

**COMPARATIVE ANALYSIS OF MODELS FOR LONGITUDINAL
DATA IN THE STUDY OF COUNTING THE NUMBER OF BACTERIA
PRESENT IN COW'S MILK**

Idemauro Antonio Rodrigues de LARA¹
Maria Helena Constantino SPYRIDES²
Mirela Gurgel GUERRA³
Adriano Henrique do Nascimento RANGEL³

- *ABSTRACT: This work describes a study conducted in the state of Rio Grande do Norte - Brazil, on the total bacterial count in cows' milk in order to assess the impacts of management procedures for milking, cleaning of equipment and the cold water tank in this variable during the process of milk production. The objective was to compare two methodological approaches for analyzing longitudinal data: the marginal models and mixed effects models. A comparative discussion regarding the use of these models, estimation and interpretation of the results is presented. In practical terms, the results showed that the handling procedures for milking and the cleanliness of the cooling tank are the ones that contribute to a further reduction in the levels of contamination of milk.*
- *KEYWORDS: TBC; longitudinal data; generalized linear models; GEE's; random effects.*

¹ Universidade de São Paulo - USP, Escola Superior de Agricultura "Luiz de Queiroz" - ESALQ, Departamento de Ciências Exatas, CEP:13418-900, Piracicaba, SP, Brasil. E-mail: idemauro@usp.br

² Universidade Federal do Rio Grande do Norte -- UFRN, Departamento de Estatística, CEP: 59078-970, Natal, RN, Brasil. E-mail: spyrides@ccet.ufrn.br

³ Unidade Acadêmica Especializada em Ciências Agrárias. E-mail: mirelaguerra@yahoo.com.br / adrianohrangel@yahoo.com.br