

STATISTICAL MODELING FOR PERFORMANCE OF TEAMS IN THE CITRUS HARVEST: CLASSICAL VERSUS BAYESIAN APPROACH

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- **ABSTRACT:** *This study aims to identify the main factors that contribute to the performance of different teams of workers in the citrus harvest from a production engineering viewpoint. Statistical modeling was adopted as a quantitative approach in order to analyze a dataset from a citrus company in the state of São Paulo, Brazil. The main goal of the study was to verify the relationship between these factors and the general performance indicator given by the “number of boxes”. The manager in the citrus harvest area of the company indicated several variables related to the worker team performance. For the data analysis, we consider a multiple linear regression model assuming transformed responses and Poisson regression models, under a Bayesian approach. The Bayesian approach had the best adherence to the data and shows us that the fruit harvest volume was affected by factors such as the team leader, the number of pickers, the percentage of male workers, among other variables.*
- **KEYWORDS:** *Citrus; performance of teams; harvest; linear regression models; Poisson regression model; Bayesian analysis; Markov Chain Monte Carlo (MCMC) methods.*

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