

NONLINEAR REGRESSION IN THE UNFOLDING OF THE INTERACTION IN EXPERIMENTS WITH SPLIT-PLOTS IN TIME

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- **ABSTRACT:** This paper presents a way to fit a nonlinear regression model in an experiment with repeated measurements over time. In the experiment, the weight gain of male and female Santa Inês breed sheep, in pounds, in twelve different ages is measured. Conducted in a split-plot design, as the time factor was not randomized, the analysis of variance requires correction of the degrees of freedom, as the sphericity condition is not satisfied. The Greenhouse and Geisser correction (G-G) was used for the purposes of interaction and time. The F test in the analysis of variance showed a significant result for the interaction between the factors and the splitting of the interaction. In order to evaluate the effect of the time factor at each level of the gender factor, a Gompertz model was proposed, as well as a test of model adherence. For the proposed analysis, we concluded that the univariate model, with split-plot design, can be used in experiments of animal growth, but its application is prone to verification of the sphericity condition. They also found that the incorporation of the splitting of interactions, by adjusting the Gompertz model, is a viable procedure and allowed to evaluate the real quality of fit.
- **KEYWORDS:** Repeated measure; Geisser Greenhouse correction; Adhesion test; Gompertz model.

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