# APPLICATION OF LOGISTIC-NORMAL MODELS TO STUDY THE EPIDEMIOLOGY OF WHITE ROT IN GARLIC

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White rot is produced by a soil-born fungus, *Scletorium cepivorum* Berk, with very serious effects: infected fields can not be used for garlic or onions for years. Disease progress curves are used in plant epidemiology to describe temporal changes in the proportion of diseased plants. For these studies, observations are taken longitudinally, and the models used are non linear. Regression models with random coefficients can be used to induce correlation among repeated observations and to reflect the variability among curves. They can also accommodate various distributions more appropriate for counts and proportions, like the binomial distribution. In this paper we propose modeling the disease progress using logistic-normal models: a logistic regression model for the disease progress curves with random coefficients having normal distribution. Data from five different environments in Córdoba (Argentina) were used. Models considered included random intercepts and fixed slopes, and random intercepts and slopes. In all cases, possible heterogeneity in the parameters due to environment and initial inoculum density was considered. For the final model we compared site-specific and (induced) marginal progress curves. Results confirm that the disease progress curves depend on initial inoculum density and environment, but the variability of intercepts and slopes depends only on initial density.