Statistical Package : Analysis of Correlated Variances (based on intercropping experiments)

(ANOCORVA)

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Abstract

Intercropping refers to the situation where different crops are grown together for all or part of their growing periods. This project is to write a statistical package : to examine the analysis of data from intercropping experiments in terms of a multivariate normal model for the observed yields. Linear models are used throughout for the dispersion structure, i.e. the dispersion matrix of all responses from a given experiments is a linear combination of known symmetric matrices whose coefficients are to be estimated.

Two methods of estimation are used. The first method estimates all parameters by maximum likelihood. The second method has two stages, namely, restricted maximum likelihood estimation of the dispersion parameters followed by generalized least squares estimation of the expectation parameters using the estimated dispersion structure as though it were the correct one. The Akaike Information Criterion is used throughout to test for simplification of any particular model.

Data from intercropping experiments are analysed in order to illustrate the applicability of the two methods and for testing the program.