

TUTORIAL MIXED MODELS

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Designed experiments conducted by crop scientists often give rise to several fixed and random sources of variation. Pertinent examples are split-plot designs, series of experiments and repeated measurements taken on the same experimental unit, e.g. on the same field plot. Data arising from such experiments may be conveniently analysed by linear mixed models.

The tutorial will give some real data examples for mixed model approaches in agricultural research. We will outline basic principles for the construction of appropriate models and will discuss decision rules for the choice between fixed and random sources of variation.

The analysis with a software package will be demonstrated using PROC MIXED of the SAS System.

References

- Piepho, H.P., Büchse, A., and Emrich, K. (2003): A hitchhiker's guide to the mixed model analysis of randomized experiments. *Journal of Agronomy and Crop Science*, 189, 310-322
- Piepho, H.P., Büchse, A., Richter, C. (2004): A mixed modelling approach to randomized experiments with repeated measures. *Journal of Agronomy and Crop Science*, 190, 230-247