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Design and analysis of split-plot, split-split-plot, and other stratified designs

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In stratified designs, restricted randomization is often due to budget or time constraints. For example, if a factor is difficult to change and changing its level is expensive, the tests in a design are grouped into blocks so that within each block the level of the difficult factor is kept constant. Another example appears in agriculture, where some factors may need to be applied to larger experimental units (think of aerial spraying of pesticides), while others may be applied to smaller units (crop variety). A final example is an experiment in which several mixtures are made and different process conditions are tested on each of them. In this last case, the mixture factors are the ones that are difficult to change and the process factors are the ones that are easy to change.

To design and analyse these problems, strata information must be taken into account.

On the one hand, the restricted randomization sources should be identified during the design of the experiment. The EFFEX software platform provides an easy-to-use interface to find an experimental design for the given situation.

On the other hand, ignoring the strata present in the data can lead to meaningless models and incorrect conclusions. The EFFEX software platform's mixed modelling analysis tools graphically display the best models and guide the user to identify the most important effects.

Type of presentation

Talk

Classification

Mainly application

Keywords

Design of Experiments, Split-plot design, Mixed modeling

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