Block design with nested rows and columns for research on food acceptability limitation for *Tetranychus urticae*

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Abstract

We presented properties of some partially balanced block designs with nested rows and columns. The designs are considered for near-factorial experiments, when there are a levels of experimental factor A and b levels of experimental factor B and there is one control treatment added. We carried out our consideration by the derived mixed linear model resulting from randomization of blocks, rows and columns. For this model of observations, some properties of estimation of treatment contrasts are discussed. We calculated the efficiency factors of estimation of treatment contrasts.

We formulated theorems for some partially balanced block designs with nested rows and columns to be designs possessing special properties. Plant protection experiment on limitation of food acceptability for *T. urticae* is given to show how the obtained results can be applied.

Keywords

Block design with nested rows and columns, Mixed model, Factorial experiments, Near-factorial experiments, *Tetranychus urticae*.

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