Automatic report for a split-plot design

AgroFIMS

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# 1. Model specification and data description

There are data for a split-plot design with 6 levels for the main plot factor, 18 levels for the sub-plot factor, and 2 replications for the main plot factor. The statistical model is

$$y\_{ijk}=μ+α\_{i}+β\_{j}+γ\_{k}+(αβ)\_{ij}+(αγ)\_{ik}+(βγ)\_{jk}+(αβγ)\_{ijk}$$

where

* $y\_{ijk}$ is the observed response with level $i$ of the main plot factor, level $j$ of the sub-plot factor, and replication $k$.
* $μ$ is the mean response over all levels of factors and replications.
* $α\_{i}$ is the effect for level $i$ of the main plot factor.
* $β\_{j}$ is the effect for level $j$ of the sub-plot factor.
* $γ\_{k}$ is the effect of replication $k$.
* $(αβ)\_{ij}$, $(αγ)\_{ik}$, $(βγ)\_{jk}$, $(βγ)\_{jk}$, and $(αβγ)\_{ijk}$ the corresponding interactions.

In this model $(αγ)\_{ik}$ is the error term for the main plot factor, and $(βγ)\_{jk}$ and $(αβγ)\_{ijk}$ are pooled to form the error term for the split-plot factor.

# 2. Analysis for trait barley\_grain\_fresh\_weight\_1000\_grain\_g

## 2.1. ANOVA

## Analysis of Variance Table
##
## Response: y
## Df Sum Sq Mean Sq F value Pr(>F)
## rep 1 450 450
## mpf 4 13360 3340
## Ea 0 0
## spf 12 0 0
## mpf:spf
## Eb

# 3. Analysis for trait barley\_grain\_dry\_weight\_1000\_grain\_g

## 3.1. ANOVA

## Analysis of Variance Table
##
## Response: y
## Df Sum Sq Mean Sq F value Pr(>F)
## rep 1 1404.5 1404.5
## mpf 4 11984.0 2996.0
## Ea 0 0.0
## spf 12 0.0 0.0
## mpf:spf
## Eb