Introduction to agricolae

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1 Preface

The following document was developed to facilitate the use of agricolae package in R, it is understood that the user knows the statistical methodology for the design and analysis of experiments and through the use of the functions programmed in agricolae facilitate the generation of the field book experimental design and their analysis. The first part document describes the use of graph.freq role is complementary to the *hist* function of R functions to facilitate the collection of statistics and frequency table, statistics or grouped data histogram based training grouped data and graphics as frequency polygon or ogive; second part is the development of experimental plans and numbering of the units as used in an agricultural experiment; a third part corresponding to the comparative tests and finally provides agricolae miscellaneous additional functions applied in agricultural research and stability functions, soil consistency, late blight simulation and others.

2 Introduction

The package **agricolae** offers a broad functionality in the design of experiments, especially for experiments in agriculture and improvements of plants, which can also be used for other purposes. It contains the following designs: lattice, alpha, cyclic, balanced incomplete block designs, complete randomized blocks, Latin, Graeco-Latin, augmented block designs, split plot and strip plot. It also has several procedures of experimental data analysis, such as the comparisons of treatments of Waller-Duncan, Bonferroni, Duncan, Student-Newman-Keuls, Scheffe, Ryan, Einot and Gabriel and Welsch multiple range test or the classic LSD and Tukey; and non-parametric comparisons, such as Kruskal-Wallis, Friedman, Durbin, Median and Waerden, stability analysis, and other procedures applied in genetics, as well as procedures in biodiversity and descriptive statistics, Mendiburu (2009)

2.1   Installation

The main program of **R** should be already installed in the platform of your computer *(Windows, Linux or MAC)*. If it is not installed yet, you can download it from the R project https://www.r-project.org/ of a repository CRAN.

```
install.packages("agricolae")
```

Once the `agricolae` package is installed, it needs to be made accessible to the current **R** session by the command:

```
library(agricolae)
```

For online help facilities or the details of a particular command (such as the function `waller.test`) you can type:

```
help(package="agricolae")
help(waller.test)
```

For a complete functionality, `agricolae` requires other packages

MASS:	for the generalized inverse used in the function `PBIB.test`
nlme:	for the methods REML and LM in `PBIB.test`
klaR:	for the function `triplot` used in the function `AMMI`
cluster:	for the use of the function `consensus`
AlgDesign:	for the balanced incomplete block design `design.bib`

References

Mendiburu, F. de (2009). Una herramienta de análisis estadístico para la investigación agrícola.