

Package ‘AugmentedPooledRCBD’

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Type Package

Title Augmented Pooled Randomized Complete Block Design Analysis

Version 0.1.0

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Description Augmented randomized complete block designs (augmented RCBDs) are useful for researchers to evaluate large numbers of unreplicated test entries with limited replicated checks. This R and 'Shiny'-based statistical package provides methods for the analysis of augmented randomized complete block designs (augmented RCBDs) across multiple environments. The package performs environment-wise augmented RCBD analysis and pooled analysis across environments, including analysis of variance (ANOVA), testing for homogeneity of error variances across environments, adjusted treatment means, treatment sum-of-squares partitioning, standard error of the mean (SEM), critical difference (CD), and treatment ranking. For pooled analysis, environment-specific error variances are assessed for homogeneity and used for appropriate transformation where required, followed by a general linear model incorporating environment, block nested within environment, treatment, and environment x treatment interaction. This 'Shiny' interface provides a user-friendly platform that enables researchers and plant breeders to perform these analyses without requiring extensive programming knowledge. For method details see, Federer, W. T. (1961) <doi:10.2307/2527837>. It consists of the function augmentedPooledRCBD() which launches the application interface.

License GPL-3

Encoding UTF-8

Imports car, dplyr, emmeans, shiny, DT, shinybusy, rlang

RoxygenNote 7.3.3

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

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Description

Launches an interactive Shiny application for performing augmented randomized complete block design analysis across multiple environments.

Usage

augmentedPooledRCBD()

Value

An interactive Shiny application for augmented pooled RCBD analysis.

References

Federer, W. T. (1961). Augmented designs with one-way elimination of heterogeneity. *Biometrics*, 17(3), 447-473. doi:10.2307/2527837

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Malaquias, J. V., Amabile, R. F., Zorzo, F., Melo, J. V. P., & Fagioli, M. (2023). Analysis of variance in augmented block design and Scott-Knott’s test in hybrid corn selection studies. *Pesquisa Agropecuária Brasileira*, 58, e03023. doi:10.1590/S16783921.pab2022.v57.03023

Examples

```
if (interactive()) {  
  augmentedPooledRCBD()  
}
```

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