

Package ‘ME Designs’

January 20, 2025

Type Package

Title Mating Environmental Designs

Version 1.0.0

Maintainer Ashutosh Dalal <ashutosh.dalal97@gmail.com>

Description In breeding experiments, mating environmental (ME) designs are very popular as mating designs are directly implemented in the field environment using block or row-column designs. Here, three functions are given related to three new methods which will generate mating diallel cross designs (Hinkelmann and Kempthorne, 1963<[doi:10.2307/2333899](https://doi.org/10.2307/2333899)>) or mating environmental (ME) designs along with design parameters, C matrix, eigenvalues (EVs), degree of fractionations (DF) and canonical efficiency factor (CEF). Another one function is added to check the properties of a given ME diallel cross design.

License GPL (>= 2)

Encoding UTF-8

RoxygenNote 7.3.2

NeedsCompilation no

Author Ashutosh Dalal [aut, cre],
Cini Varghese [aut, ctb],
Rajender Parsad [aut, ctb],
Mohd Harun [aut, ctb]

Repository CRAN

Date/Publication 2024-12-02 12:31:07 UTC

Contents

CheckME_Diallel	2
ME_CDC	2
ME_PDC1	3
ME_PDC2	3

Index	5
--------------	----------

CheckME_Diallel	<i>Checking the Properties of a ME-PDC</i>
-----------------	--

Description

Checking the Properties of a ME-PDC

Usage

```
CheckME_Diallel(design)
```

Arguments

design	Provide a ME-PDC
--------	------------------

Value

Generates parameters of the designs along with C matrix, eigenvalues (EVs), degree of fractionations (DF) and canonical efficiency factor (CEF).

Examples

```
library(MEDesigns)
design<-ME_PDC1(10)$ME_PDC
CheckME_Diallel(design)
```

ME_CDC	<i>ME-CDCs for Even Number of Lines</i>
--------	---

Description

ME-CDCs for Even Number of Lines

Usage

```
ME_CDC(lines)
```

Arguments

lines	Number of Lines ≥ 6
-------	--------------------------

Value

ME-CDCs for an even number of lines along with their parameters, C matrices, eigenvalues (EVs) and canonical efficiency factor (CEF).

Examples

```
library(MEDesigns)
ME_CDC(6)
```

ME_PDC1

ME-PDCs for Even Number of Lines

Description

ME-PDCs for Even Number of Lines

Usage

```
ME_PDC1(lines)
```

Arguments

lines Number of Lines ≥ 6

Value

ME-PDCs for an even number of lines along with their parameters, C matrices, eigenvalues (EVs), degree of fractionations (DF) and canonical efficiency factor (CEF).

Examples

```
library(MEDesigns)
ME_PDC1(6)
```

ME_PDC2

ME PDCs for Composite Number of Lines

Description

ME PDCs for Composite Number of Lines

Usage

```
ME_PDC2(p, q)
```

Arguments

p Any value ($p \geq 3$)
q Any value ($q \geq 3$)

Value

This function will provide ME-PDCs for a composite number, $v(= pq)$ along with basic parameters, C matrix, eigenvalues (EVs), degree of fractionations (DF) and canonical efficiency factor (CEF).

Examples

```
library(MEDesigns)
ME_PDC2(3,3)
```

Index

CheckME_Diallel, [2](#)

ME_CDC, [2](#)

ME_PDC1, [3](#)

ME_PDC2, [3](#)