Package 'seliNDRIx'

May 9, 2025

Title Construction of Selection Index

Version 0.1.2

Description Selection index is one of the efficient and acurrate method for selection of animals. This package is useful for construction of selection indices.
It uses mixed and random model least squares analysis to estimate the heritability of traits and genetic correlation between traits. The package uses the sire model as it is considered as random effect. The genetic and phenotypic (co)variances along with the relative economic values are
used to construct the selection index for any number of traits. It also estimates the accuracy of the index and the genetic gain expected for different traits. Fisher (1936) <doi:10.1111/j.1469-1809.1936.tb02137.x>.

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Encoding UTF-8

RoxygenNote 7.3.2

Imports dplyr, psych, stats, utils

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

Depends R (>= 3.5)

LazyData true

URL https://github.com/venkatesanraja/seliNDRIx

BugReports https://github.com/venkatesanraja/seliNDRIx/issues

NeedsCompilation no

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`data` *Data set for construction of selection index*

Description

This dataset contains information used for constructing a selection index.

Usage

```
data(data, package="selINDRIx")
```

Format

A data frame with 689 rows and 7 columns:

animal The animal id

sire Sire of the cows

farm Farm from which the data were collected

soc The season of calving of a cow

poc The period of calving of a cow

tmy Total lactation milk yield in Kg

py The peak yield in Kg

fatyield The average fat yield

`mixed_si` *Title Construction of selection index*

Description

Title Construction of selection index

Usage

```
mixed_si(data, traits, fixed, random, economic_values)
```

Arguments

data	A data frame containing the fixed effects, random effects and traits
traits	A character vector specifying trait names for which index has to be calculated
fixed	The fixed effects
random	The random effects
economic_values	The relative economic values

Value

Results of selection index

Examples

```
# Example dataset
data("data", package = "seliNDRIx", envir = environment())
traits <- c("tmy", "py", "fatyield")
fixed <- c("farm", "soc", "poc")
random <- c("sire")
economic_values <- c(1, 0.85, 0.65)
results <- mixed_si(data = data, traits = traits,
fixed = fixed, random = random, economic_values = economic_values)
```

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random_si *Title Construction of selection index*

Description

Title Construction of selection index

Usage

```
random_si(data, traits, random, economic_values)
```

Arguments

data	A data frame containing the fixed, random and traits
traits	The traits for which index values are to be estimated
random	The random effects
economic_values	The relative economic values

Value

Results of selection index

Examples

```
# Example dataset
data("data", package = "seliNDRIx", envir = environment())
traits <- c("tmy", "py", "fatyield")
random <- c("sire")
economic_values <- c(1, 0.85, 0.65)
results <- random_si(data = data, traits = traits,
random = random, economic_values = economic_values)
```

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