# Package: BaseTempSeed (via r-universe)

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**Type** Package

**Title** Estimation of Seed Germination Base Temperature in Thermal Modelling

**Version** 0.1.0

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**Description** All the seeds do not germinate at a single point in time due to physiological mechanisms determined by temperature which vary among individual seeds in the population. Seeds germinate by following accumulation of thermal time in degree days/hours, quantified by multiplying the time of germination with excess of base temperature required by each seed for its germination, which follows log-normal distribution. The theoretical germination course can be obtained by regressing the rate of germination at various fractions against temperature (Garcia et al., 1982), where the fraction-wise regression lines intersect the temperature axis at base temperature and the methodology of determining optimum base temperature has been described by Ellis et al. (1987). This package helps to find the base temperature of seed germination using algorithms of Garcia et al. (1982) and Ellis et al. (1982) <doi:10.1093/JXB/38.6.1033> <doi:10.1093/jxb/33.2.288>.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**Imports** stats, NlcOptim

**RoxygenNote** 7.2.1

**Depends** R (>= 2.10)

**NeedsCompilation** no

**Date/Publication** 2023-04-21 08:12:37 UTC

**Repository** https://hardikghosh911.r-universe.dev

**RemoteUrl** https://github.com/cran/BaseTempSeed

**RemoteRef** HEAD

**RemoteSha** 621f8c4806290e56dc43c816d040d90fd1381760

# Contents

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Data *This is data to be included in my package*

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### Description

This is data to be included in my package

### Usage

    data(Data)

### Format

A data frame with 5 rows and 19 column

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EstCoeff *Estimation of Base Temperature*

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### Description

Estimation of Base Temperature

### Usage

    EstCoeff(Data)

### Arguments

Data            Output TempInter Function

### Value

- Coefficients: Estimate of Coefficients

## References

- Ellis, R. H., Simon, G., & Covell, S. (1987). The Influence of Temperature on Seed Germination Rate in Grain LegumesIII. A Comparison of Five Faba Bean Genotypes at Constant Temperatures Using a New Screening Method. Journal of Experimental Botany, 38(6), 1033–1043.

- Garcia-Huidobro, J., Monteith, J. L., & Squire, G. R. (1982). Time, temperature and germination of pearl millet (Pennisetum typhoides S. & H.) I. Constant temperature. Journal of experimental botany, 33(2), 288-296.

## Examples

```
library("BaseTempSeed")
Inter_data <- TempInter(Data=Data,GPercentage=c(0.1,0.2, 0.3,0.4, 0.5,0.6, 0.7,.8,0.9))
Est<-EstCoeff(Inter_data)
```

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| TempInter | *Preparation of Data for Germination Percentages* |
|---|---|

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## Description

Preparation of Data for Germination Percentages

## Usage

```
TempInter(Data, TSeed = 50, GPercentage = c(0.1, 0.25, 0.5, 0.75, 0.9))
```

## Arguments

| | |
|---|---|
| Data | Dataframe with Temperature in Row and Time in Column |
| TSeed | Total Number of Seeds |
| GPercentage | Vector of Germination Fractions |

## Value

- InterData: Final Data for Estimation

## References

- Ellis, R. H., Simon, G., & Covell, S. (1987). The Influence of Temperature on Seed Germination Rate in Grain LegumesIII. A Comparison of Five Faba Bean Genotypes at Constant Temperatures Using a New Screening Method. Journal of Experimental Botany, 38(6), 1033–1043.

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## Examples

```
library(BaseTempSeed)
Interdata<-TempInter(Data=Data,GPercentage=c(0.1,0.2, 0.3,0.4, 0.5,0.6, 0.7,.8,0.9))
```

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