

# Package ‘greenfeedr’

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**Type** Package

**Title** Process and Report 'GreenFeed' Data

**Version** 1.3.1

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**Description**

Provides tools for downloading, processing, and reporting daily and finalized 'GreenFeed' data.

**License** GPL (>= 3)

**Encoding** UTF-8

**RoxygenNote** 7.3.2

**Imports** dplyr, ggplot2, httr, lubridate, purrr, readr, readxl,  
rmarkdown, shiny, stats, stringr, tidyr

**Depends** R (>= 2.10)

**Suggests** knitr, testthat (>= 3.0.0)

**Config/testthat/edition** 3

**BugReports** <https://github.com/GMBog/greenfeedr/issues>

**URL** <https://github.com/GMBog/greenfeedr>

**VignetteBuilder** knitr

**NeedsCompilation** no

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|                |                                                           |
|----------------|-----------------------------------------------------------|
| compare_gfdata | <i>Compare Preliminary and Finalized 'GreenFeed' Data</i> |
|----------------|-----------------------------------------------------------|

---

**Description**

Compare preliminary and finalized 'GreenFeed' data.

**Arguments**

- prelimrep      a data frame with preliminary 'GreenFeed' data
- finalrep      a data frame with finalized 'GreenFeed' data
- start\_date      a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")
- end\_date      a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")

**Value**

Data frame including records removed from preliminary and final reports

**Examples**

```
# Datasets with preliminary and finalized GreenFeed data
prelimrep <- system.file("extdata", "StudyName_GFdata.csv", package = "greenfeedr")
finalrep <- system.file("extdata", "StudyName_FinalReport.xlsx", package = "greenfeedr")

data <- compare_gfdata(
  prelimrep,
  finalrep,
  start_date = "2024-05-13",
  end_date = "2024-05-20"
)
```

---

get\_gfdata*Download Preliminary and Raw 'GreenFeed' Data via 'API'*

---

**Description**

Downloads preliminary and raw 'GreenFeed' data from the 'C-Lock Inc.' server via an 'API'. Retrieves data based on specified parameters (login, date range, and units), and provides a CSV file with the 'GreenFeed' preliminary data.

**Usage**

```
get_gfdata(  
  user,  
  pass,  
  d = "visits",  
  type = 2,  
  exp = NA,  
  unit,  
  start_date,  
  end_date = Sys.Date(),  
  save_dir = tempdir()  
)
```

**Arguments**

|            |                                                                                                                |
|------------|----------------------------------------------------------------------------------------------------------------|
| user       | a character string representing the user name to logging into 'GreenFeed' system                               |
| pass       | a character string representing password to logging into 'GreenFeed' system                                    |
| d          | a character string representing data to download (opts: "visits", "feed", "rfid", "cmds")                      |
| type       | a numeric representing the type of data to retrieve (1=finalized and 2=preliminary)                            |
| exp        | a character string representing study name or other study identifier. It is used as file name to save the data |
| unit       | numeric or character vector, or a list representing one or more 'GreenFeed' unit numbers                       |
| start_date | a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")               |
| end_date   | a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                 |
| save_dir   | a character string representing the directory to save the output file                                          |

**Value**

A CSV file with the specified data (visits or raw) saved in the provided directory.

Examples

```
# Please replace "your_username" and "your_password" with your actual 'GreenFeed' credentials.
# By default, the function downloads the preliminary 'GreenFeed' data,
# if raw data is needed use options: "feed", "rfid", or "cmds"

get_gfdata(
  user = "your_username",
  pass = "your_password",
  d = "visits",
  type = 2,
  exp = "StudyName",
  unit = c(304, 305),
  start_date = "2024-01-01",
  end_date = Sys.Date(),
  save_dir = tempdir()
)
```

---

|        |                                           |
|--------|-------------------------------------------|
| pellin | <i>Process 'GreenFeed' Pellet Intakes</i> |
|--------|-------------------------------------------|

---

Description

Processes 'feedtimes' file from 'GreenFeed' system. Food drops are used to calculate pellet intakes per animal. Aggregates data to provide insights into the feeding behavior and pellet consumption of the animals during a study.

Arguments

|            |                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------|
| user       | a character string representing the user name to logging into 'GreenFeed' system                                                     |
| pass       | a character string representing password to logging into 'GreenFeed' system                                                          |
| unit       | numeric or character vector or list representing one or more 'GreenFeed' unit numbers. The order should match with "feedtimes" files |
| gcup       | a numeric value representing the grams of pellets per cup. If dual-hopper you can define multiple grams per unit                     |
| start_date | a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                                     |
| end_date   | a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                                       |
| save_dir   | a character string representing the directory to save the output file                                                                |
| rfid_file  | a character string representing the file with individual IDs. The order should be Visual ID (col1) and RFID (col2)                   |
| file_path  | a character string or list representing files(s) with "feedtimes" from 'C-Lock Inc.'                                                 |

**Value**

An Excel file with pellet intakes for all animals and days within the specified period is saved to save\_dir. The file is named "Pellet\_Intakes\_YYYY-MM-DD\_YYYY-MM-DD.csv".

**Examples**

```
# You should provide the 'feedtimes' file provided by C-Lock.
# it could be a list of files if you have data from multiple units to combine
path <- system.file("extdata", "feedtimes.csv", package = "greenfeedr")

# You must include the grams of pellets per cup based on the result obtained from the 10-drops test

# If the user include an rfid file, the structure should be in col1 AnimalName or Visual ID, and
# col2 the RFID or TAG_ID. The file could be save in different formats (.xlsx, .csv, or .txt).
RFIDs <- system.file("extdata", "RFID_file.csv", package = "greenfeedr")

pellin(
  unit = 1,
  gcup = 34,
  start_date = "2024-05-13",
  end_date = "2024-05-25",
  save_dir = tempdir(),
  rfid_file = RFIDs,
  file_path = path
)
```

process\_gfdata

*Process Preliminary and Finalized 'GreenFeed' Data***Description**

Processes and calculates daily and weekly averages of 'GreenFeed' data. Handles data filtering, aggregation, and summarization to facilitate further analysis.

**Arguments**

|            |                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------|
| data       | a data frame with preliminary or finalized 'GreenFeed' data                                                          |
| start_date | a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                     |
| end_date   | a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                       |
| param1     | an integer representing the number of records per day to be consider for analysis                                    |
| param2     | an integer representing the number of days with records per week to be consider for analysis                         |
| min_time   | an integer representing the minimum number of minutes for a records to be consider for analysis (default: 2 minutes) |

|           |                                                                                                                                 |
|-----------|---------------------------------------------------------------------------------------------------------------------------------|
| transform | A logical representing whether to transform gas production to L/d. If TRUE, gas will be converted from grams/day to liters/day. |
| cutoff    | an integer specifying the range for identifying outliers (default: 3 SD)                                                        |

Value

A list of three data frames:

|               |                                                   |
|---------------|---------------------------------------------------|
| filtered_data | data frame with filtered 'GreenFeed' data         |
| daily_data    | data frame with daily processed 'GreenFeed' data  |
| weekly_data   | data frame with weekly processed 'GreenFeed' data |

Examples

```
file <- system.file("extdata", "StudyName_GFdata.csv", package = "greenfeedr")
datafile <- readr::read_csv(file)

gf_data <- process_gfdata(
  data = datafile,
  start_date = "2024-05-13",
  end_date = "2024-05-25",
  param1 = 2,
  param2 = 3,
  min_time = 2
)
head(gf_data)
```

---

|               |                                             |
|---------------|---------------------------------------------|
| report_gfdata | <i>Download and Report 'GreenFeed' Data</i> |
|---------------|---------------------------------------------|

---

Description

Generates a PDF report of preliminary and finalized 'GreenFeed' data. The report includes: number of animals using 'GreenFeed' and plots with distribution of records and gas production. If the preliminary option is used, the data is retrieved from the 'C-Lock Inc.' server through an 'API', otherwise the data processed by 'C-Lock Inc.' must be provided to generate the report.

Arguments

|            |                                                                                                                |
|------------|----------------------------------------------------------------------------------------------------------------|
| input_type | a character string representing type of data (options: "preliminary" and "finalized")                          |
| exp        | a character string representing study name or other study identifier. It is used as file name to save the data |
| unit       | numeric or character vector, or a list representing one or more 'GreenFeed' unit numbers                       |

|            |                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|
| start_date | a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                                      |
| end_date   | a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                                        |
| save_dir   | a character string representing the directory to save the output file                                                                 |
| plot_opt   | a character string representing the gas(es) to plot (options: "All", "CH4", "CO2", "O2", "H2")                                        |
| rfid_file  | a character string representing the file with individual IDs. The order should be Visual ID (col1) and RFID (col2)                    |
| user       | a character string representing the user name to logging into 'GreenFeed' system. If input_type is "final", this parameter is ignored |
| pass       | a character string representing password to logging into 'GreenFeed' system. If input_type is "final", this parameter is ignored      |
| file_path  | A list of file paths containing the final report(s) from the 'GreenFeed' system. If input_type is "prelim", this parameter is ignored |

**Value**

A CSV file with preliminary 'GreenFeed' data and a PDF report with a description of the preliminary or finalized data

**Examples**

```
# Please replace "your_username" and "your_password" with your actual 'GreenFeed' credentials.
# The data range must be fewer than 180 days
# Example without rfid_file (by default NA)

report_gfdata(
  user = "your_username",
  pass = "your_password",
  input_type = "preliminary",
  exp = "StudyName",
  unit = 1,
  start_date = "2023-01-01",
  end_date = Sys.Date(),
  save_dir = tempdir(),
  plot_opt = "All"
)
```

run\_app

*Launch the Greenfeedr Shiny App locally***Description**

This function launches the Greenfeedr Shiny app on your computer.

Usage

run\_app()

---

|           |                                               |
|-----------|-----------------------------------------------|
| run_gfapp | <i>Run the 'greenfeedr' Shiny App locally</i> |
|-----------|-----------------------------------------------|

---

Description

Launches the 'greenfeedr' Shiny application on your computer. The app provides an interactive interface for 'GreenFeed' data analysis, visualization, and reporting.

Usage

run\_gfapp()

Value

This function launches the Shiny app in your default web browser; it does not return a value.

Examples

```
## Not run:
greenfeedr::run_gfapp()

## End(Not run)
```

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|        |                                   |
|--------|-----------------------------------|
| viseat | <i>Process 'GreenFeed' Visits</i> |
|--------|-----------------------------------|

---

Description

Processes 'GreenFeed' visits and food drops for a requested period. Generates a list of animals not visiting the 'GreenFeed' to manage them, and a description of animals visiting the 'GreenFeed'.

Arguments

|            |                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------|
| user       | a character string representing the user name to logging into 'GreenFeed' system                                     |
| pass       | a character string representing password to logging into 'GreenFeed' system                                          |
| unit       | numeric or character vector or list representing one or more GreenFeed unit numbers.                                 |
| start_date | a character string representing the start date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                     |
| end_date   | a character string representing the end date of the study (format: "DD-MM-YY" or "YYYY-MM-DD")                       |
| rfid_file  | a character string representing the file with individual RFIDs. The order should be Visual ID (col1) and RFID (col2) |
| file_path  | a character string or list representing files(s) with feedtimes from 'C-Lock Inc.'                                   |

**Value**

A list of two data frames:

`visits_per_day` Data frame with daily processed 'GreenFeed' data, including columns for VisualID, Date, Time, number of drops, and visits.

`visits_per_animal` Data frame with weekly processed 'GreenFeed' data, including columns for VisualID, total drops, total visits, mean drops, and mean visits.

**Examples**

```
# You should provide the feedtimes files.
# it could be a list of files if you have data from multiple units to combine
path <- system.file("extdata", "feedtimes.csv", package = "greenfeedr")

# If the user include an rfid file, the structure should be in col1 AnimalName or VisualID, and
# col2 the RFID or TAG_ID. The file could be save in different formats (.xlsx, .csv, or .txt).
RFIDs <- system.file("extdata", "RFID_file.csv", package = "greenfeedr")

data <- viseat(
  file_path = path,
  unit = 1,
  start_date = "2024-05-13",
  end_date = "2024-05-25",
  rfid_file = RFIDs
)
```

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