

# Revolutionize GreenFeed Data Management with the greenfeedr R-package

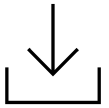
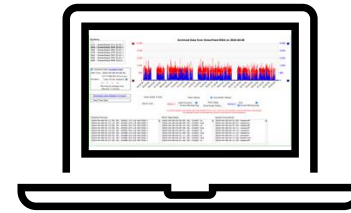
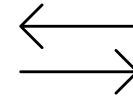
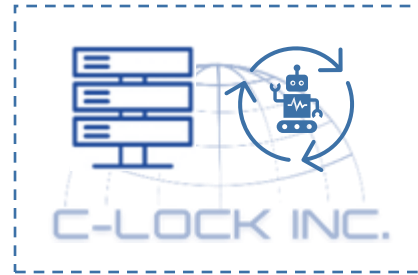


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# GreenFeed

## System communication and data management



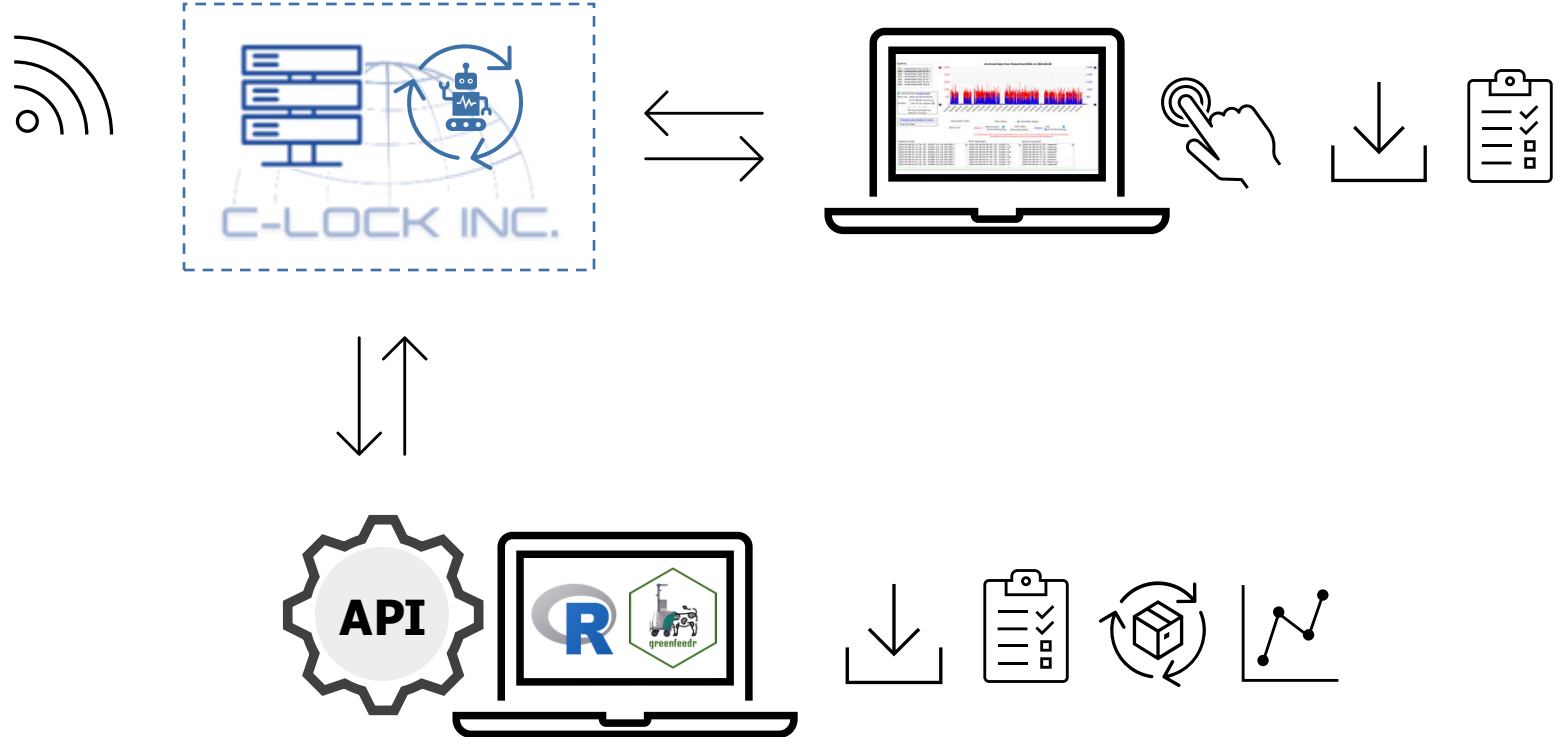


***"do as little as possible by hand and  
as much as possible with functions"***

Wickham and Bryan, 2023

# GreenFeed

## System communication and data management

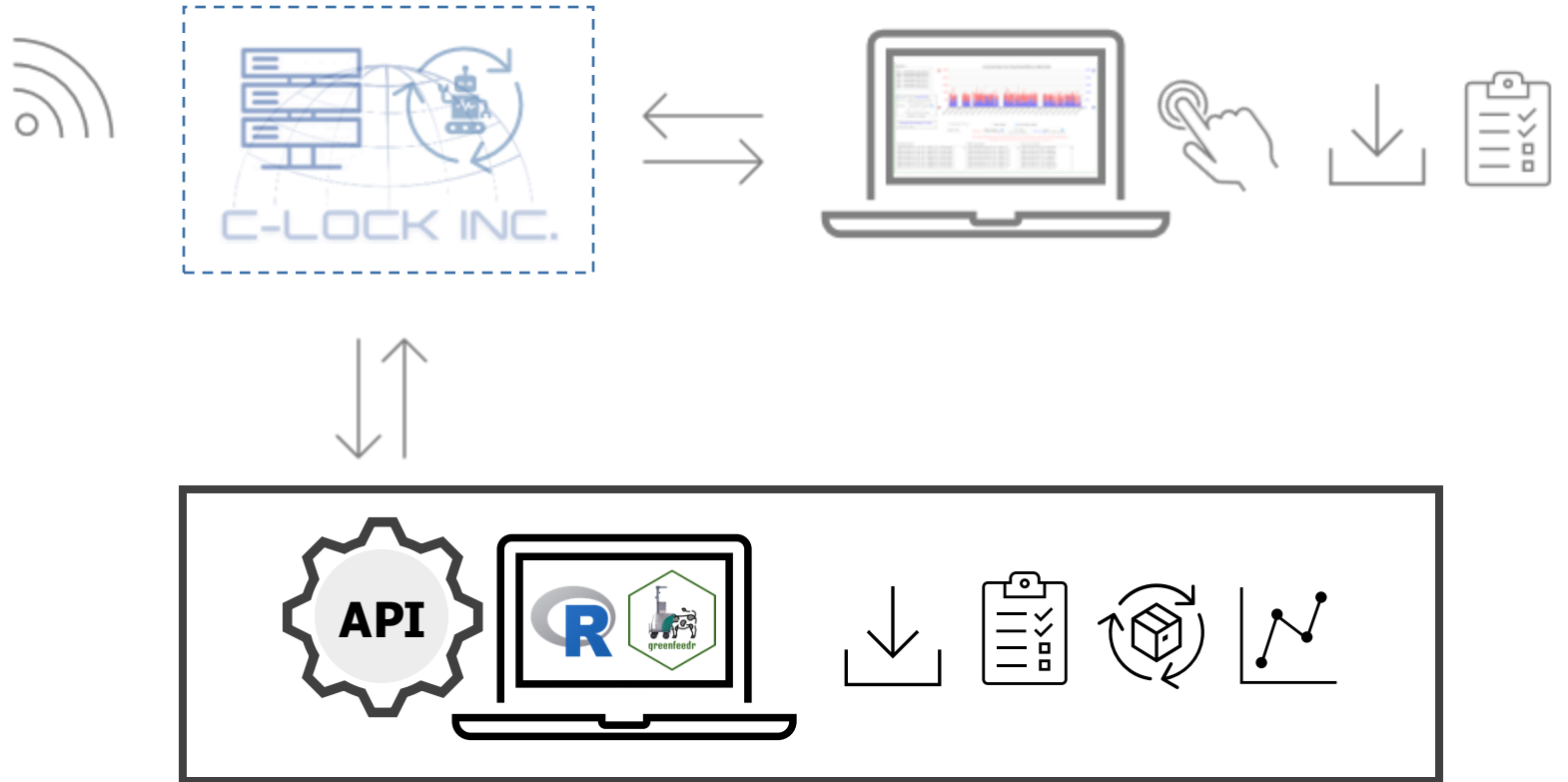


An **API** (Application Programming Interface) is a set of rules that allows software applications to communicate with each other



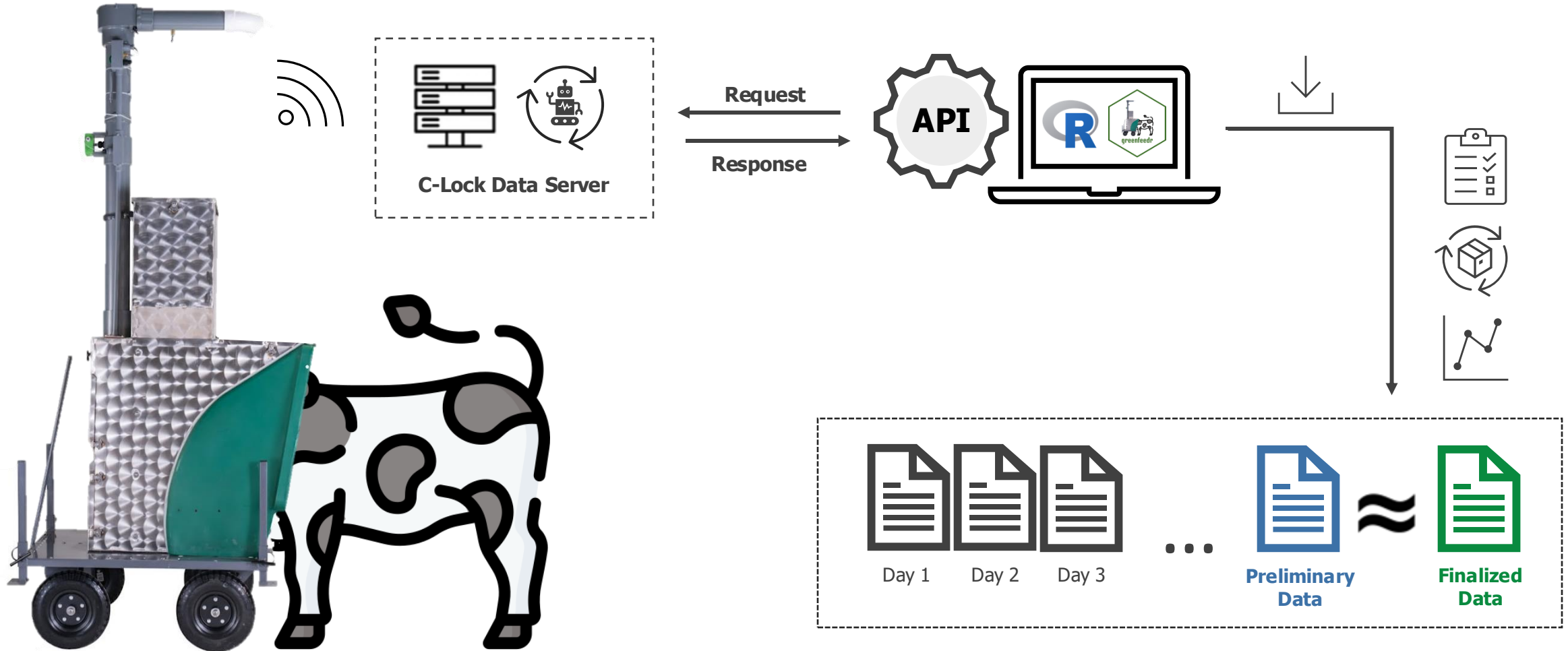
# GreenFeed

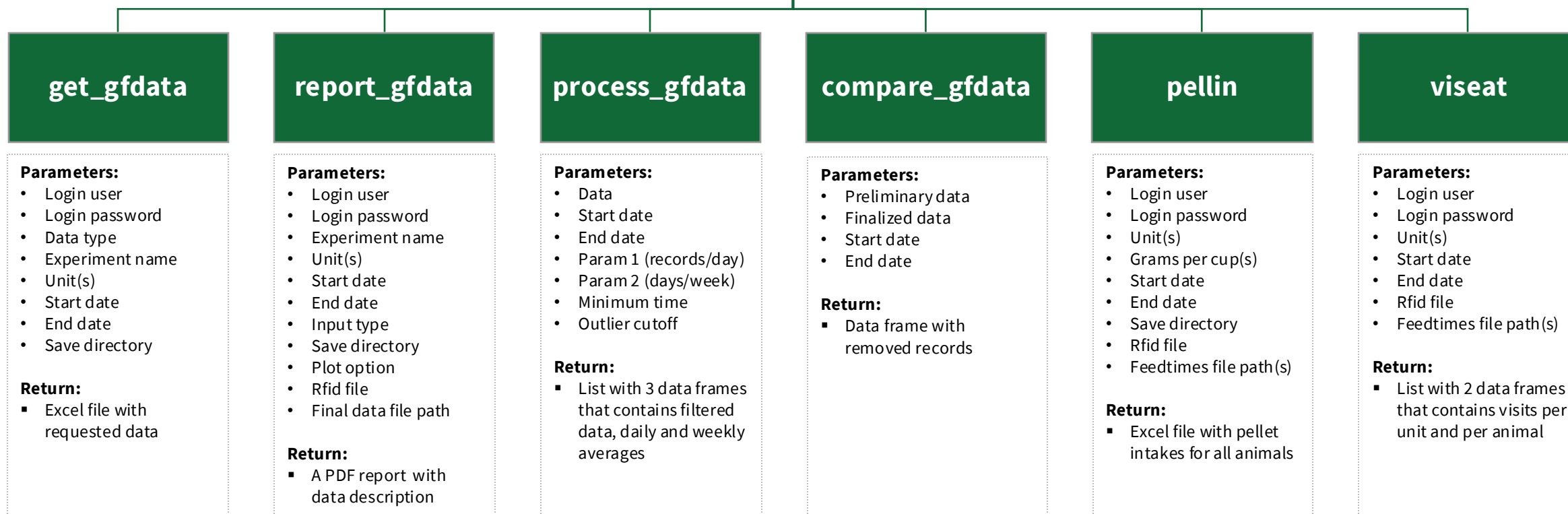
## System communication and data management



# greenfeedr

An R Package for Processing & Reporting GreenFeed Data





# Question 1

Have you used greenfeedr before?



# Installation

## greenfeedr R Package



### Released version: greenfeedr 1.1.0

```
install.packages("greenfeedr")
```

<https://cran.r-project.org/web/packages/greenfeedr/index.html>



### Development version: greenfeedr 1.1.0.999

```
install.packages("remotes")  
remotes::install_github("GMBog/greenfeedr")
```

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

# GreenFeed data management

What can greenfeedr be used for?



**Downloading data**

**Reporting data**

**Processing data**

**Analyzing data**

# GreenFeed data management

What can greenfeedr be used for?



**Downloading data**

**get\_gfdata**

**Reporting data**

**Processing data**

**Analyzing data**

# Downloading data

## Preliminary and finalized data

?

GREENFEED

GreenFeed

Animals

Data

View/Download Raw Data

Standard Calibrations

CO<sub>2</sub> Recovery Tests

Processed Data And Support Files

Other Files:

Filename	File Size	Modified Time	Delete
GreenFeed_Summarized_Data_DEMO.xlsx	501.2 KB	2023-11-29 15:05	
GreenFeed_Summarized_Data_304.xlsx	1.5 MB	2024-06-13 05:32	
GreenFeed_Summarized_Data_305.xlsx	774.3 KB	2024-06-13 05:32	
GreenFeed_Summarized_Data_45_212.xlsx	633.3 KB	2024-06-13 05:32	
GreenFeed_Summarized_Data_579.xlsx	157.6 KB	2024-06-13 05:32	
GreenFeed_Summarized_Data_592_593.xlsx	627.6 KB	2024-06-13 05:32	
GreenFeed_Summarized_Data_716.xlsx	9.2 KB	2024-06-13 05:32	
2024-03-01_to_2024-04-25_for_fids_579_temp.xlsx	944.5 KB	2024-04-25 10:21	X
2024-03-03_to_2024-03-18_for_fids_212_304_305_579_592_593_648_temp.xlsx	698.7 KB	2024-03-18 08:40	X
GreenFeed_Summarized_Data_593.xlsm	9.1 KB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_212.old.xlsm	2.9 MB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_212.xlsm	2.1 MB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_212_2020_09_16_To_2020_10_05.xlsm	1.9 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2020_10_15_To_2020_11_23.xlsm	1.7 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_02_16_To_2021_03_07.xlsm	1.8 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_02_16_To_2021_03_07_updated.xlsm	1.8 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_04_26_To_2021_08_26.xlsm	1.7 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_08_03_To_2021_08_21.xlsm	1.8 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_10_15_To_2021_11_15.xlsm	1.7 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2021_11_15_To_2021_11_29.xlsm	1.9 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2022_05_20_To_2022_06_10.xlsm	1.9 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2022_08_23_To_2022_09_06.xlsx	240.5 KB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2022_10_12_To_2022_10_27.xlsx	333.7 KB	2023-11-29 15:05	
GreenFeed_Summarized_Data_212_2023_09_18_to_2023_11_03.xlsx	5.9 MB	2024-01-12 08:29	X
GreenFeed_Summarized_Data_212_2023_11_13_to_2023_12_22.xlsx	5.4 MB	2024-01-12 08:26	X
GreenFeed_Summarized_Data_212_2024_03_11_to_2024_05_03.xlsx	6.3 MB	2024-06-05 12:47	X
GreenFeed_Summarized_Data_212_45_2023_04_23_to_2023_06_02.xlsx	7.1 MB	2023-11-29 15:05	
GreenFeed_Summarized_Data_45_212.xlsm	1.9 MB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_579_2024_01_22_to_2024_03_08.xlsx	6.9 MB	2024-03-29 17:32	X
GreenFeed_Summarized_Data_579_2024_03_15_to_2024_05_09.xlsx	6.4 MB	2024-06-12 10:22	X
GreenFeed_Summarized_Data_592.xlsm	115.1 KB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_592_593.xlsm	2.5 MB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_592_593_2024_02_01_to_2024_05_11.xlsx	12.1 MB	2024-06-12 10:21	X
GreenFeed_Summarized_Data_593.xlsm	156.6 KB	2023-11-29 14:31	X
GreenFeed_Summarized_Data_592_593_2023_07_13_to_2023_10_20.xlsx	11.0 MB	2023-11-29 14:31	X

Due to database upgrades, daily auto-processed workbooks may be delayed by a few hours each day.

To generate custom workbooks quicker, follow the instructions at the bottom of this page.

Access to:

<https://ext.c-lockinc.com/greenfeed/data.php>



To create a custom workbook, please enter the systems you would like included (comma separated), and a date range then click "Generate Workbook"

Systems:

Date Range:  to

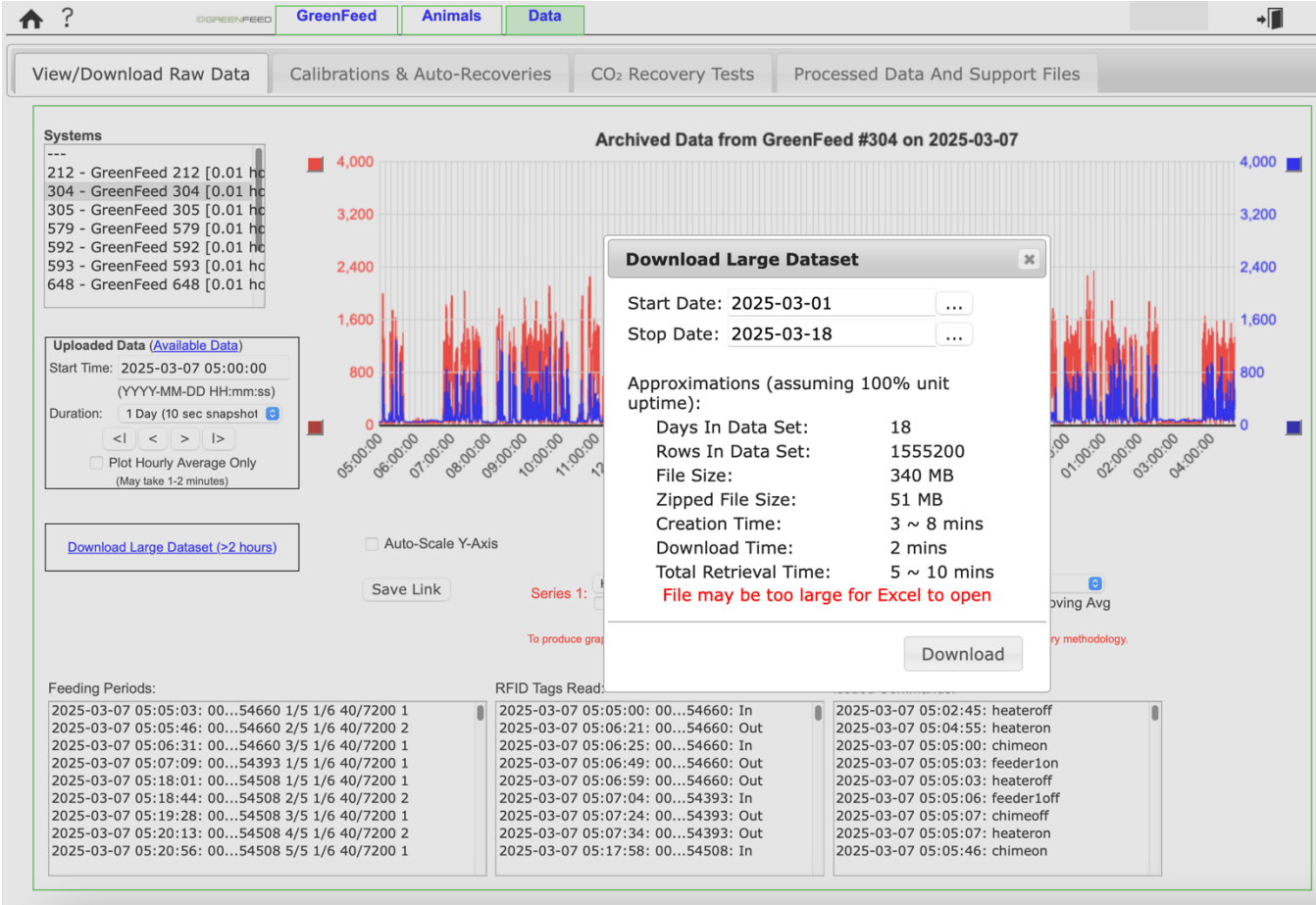
Please Note: Data generated is preliminary and has not been reviewed by the C-Lock Team.

# Downloading data

## Visits, commands, and rfids

Access to:

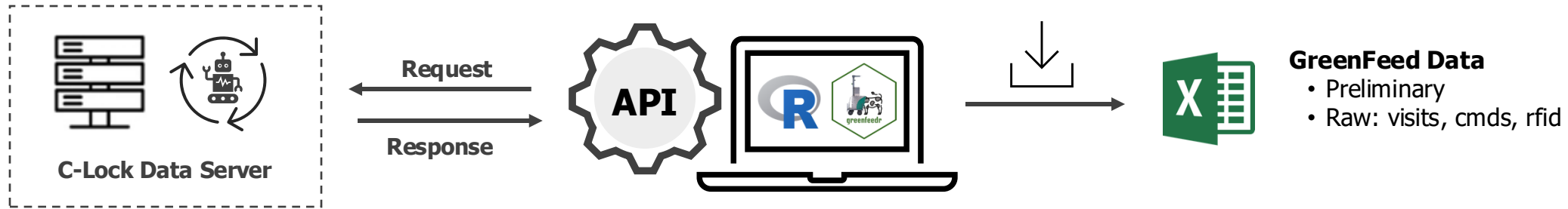
<https://ext.c-lockinc.com/greenfeed/data.php>





# Downloading data

How can you automate the process?



# Downloading data

How can you automate the process?



```
get_gfdata(user = USERNAME, pass = PASSWORD, d = DATA_TYPE, exp = NAME, unit = FID, start_date = MM/DD/YY, end_date = MM/DD/YY,  
save_dir = /DIR/)
```

```
report_gfdata(input_type = PRELIM/FINAL, exp = NAME, unit = FID, start_date = MM/DD/YY, end_date = MM/DD/YY, save_dir = /DIR/,  
plot_opt = ALL|CH4|CO2|O2|H2, rfid_file = /FILE_PATH/DATA, user = USERNAME, pass = PASSWORD)
```

# Downloading data

## Function: `get_gfdata`

**@description** Downloads preliminary and raw GreenFeed data from C-Lock server via API

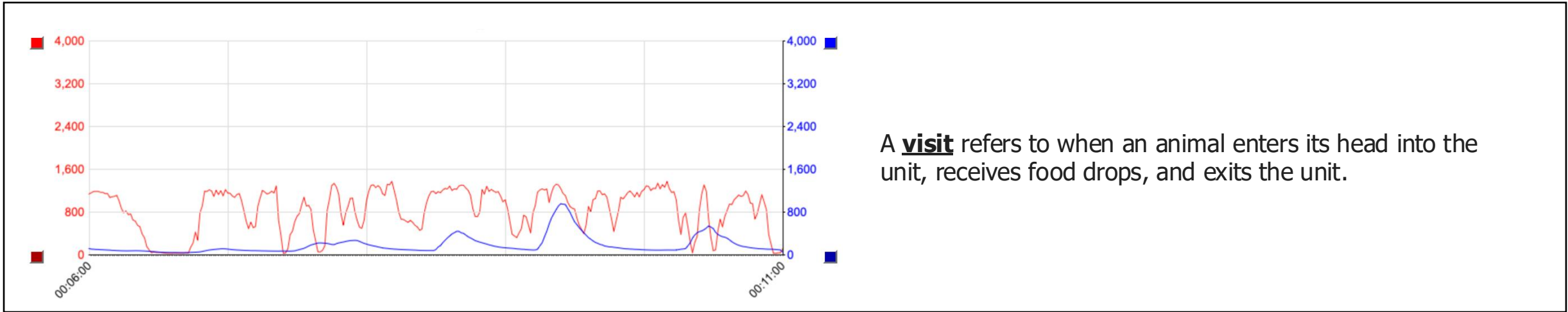
**`get_gfdata`**(

```
    user = "GUILLERMO",  
    pass = "GF1992",  
    d = "visits", # "feed", "rfid", "cmds"  
    exp = "Exp01",  
    unit = 305, # "304,305", c(304,305), list(304,305)  
    start_date = "02/20/2025", # "2025-02-20", "2/20/25"  
    end_date = "03/17/2025",  
    save_dir = "/Downloads/"  
)
```

**@return** A CSV file with the specified data (visits, feed, rfids, or commands) saved in the provided directory

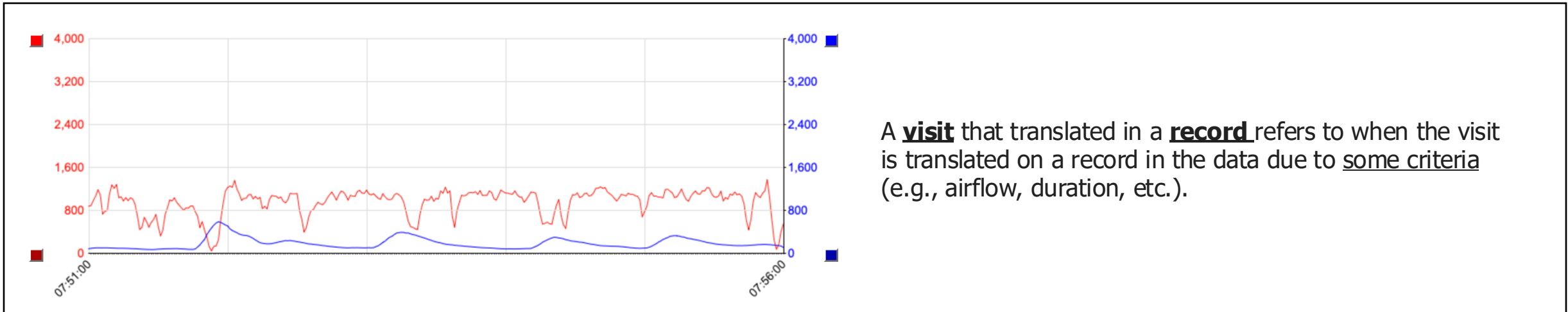
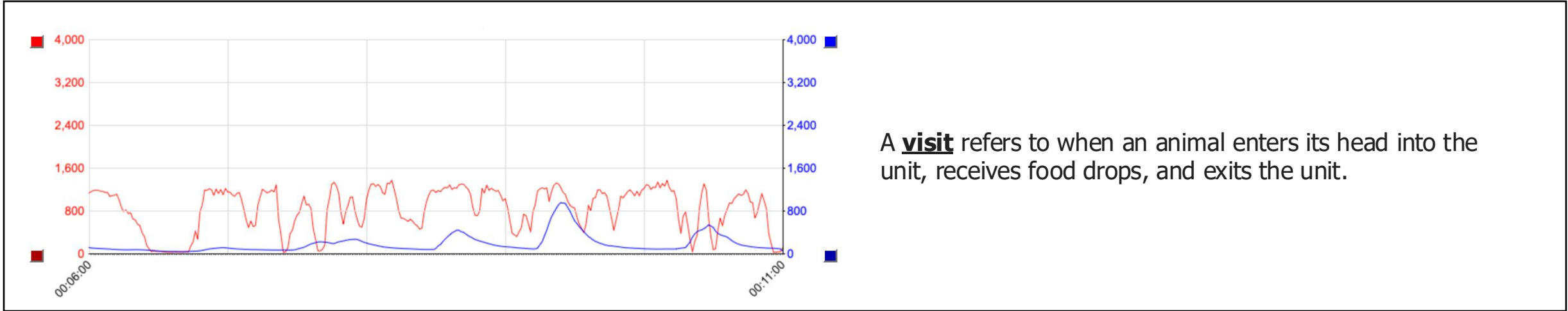
# GreenFeed data

## Visits and records



# GreenFeed data

## Visits and records





# GreenFeed data

## How it looks the preliminary data?

- A **record** refers to when the visit is translated on a record in the data due to some criteria (e.g., >2 minutes).

FID		Animal ID		Date/Time		Gas records												
FeederID	AnimalName	RFID	StartTime	EndTime	GoodDataDuration	CO2GramsPerDay	CH4GramsPerDay	O2GramsPerDay	H2GramsPerDay	H2SGran	AirflowLiters	AirflowCf	WindSpeedM	WindDirDeg	WindCf	WasInterrupt	InterruptingT	TempPipeDe
Day 1	716	"000000000840003250681853"	1/17/25 15:57	1/17/25 16:02	0:04:03	11937.27945	413.1706076	8323.428782	1.458118937	0	32.036336	1.0098183	0	178.79661	1		""	7.7187098
	716	"000000000840003234513880"	1/17/25 16:06	1/17/25 16:10	0:03:37	13949.42834	513.6369597	9635.877246	0.822802364	0	32.015106	1.0099245	0	178.81678	1		""	8.3500651
	716	"000000000840003250681886"	1/17/25 16:24	1/17/25 16:27	0:02:08	15411.63206	321.3278208	10442.09501	0.53868698	0	32.036834	1.0098158	0	178.78703	1		""	7.7054621
	716	"000000000840003250681802"	1/17/25 17:47	1/17/25 17:51	0:02:58	13688.66245	488.2964363	9175.229933	0.54728294	0	32.056347	1.0097183	0	178.79032	1		""	4.6788099
	716	"000000000840003250681853"	1/17/25 18:36	1/17/25 18:39	0:03:21	15957.21263	646.2453375	10223.10354	3.785191748	0	32.099123	1.0095044	0	178.76738	1		""	4.2169024
	716	"000000000840003234513962"	1/17/25 18:40	1/17/25 18:45	0:02:26	15863.67165	506.590961	9935.3091	1.002334145	0	31.988212	1.0100589	0	178.79591	1		""	4.8572011
	716	"000000000840003234513970"	1/17/25 19:14	1/17/25 19:16	0:02:13	11793.95293	377.9065725	9229.520851	0.187687309	0	31.994322	1.0100284	0	178.68575	1		""	4.8502965
	716	"000000000840003234513881"	1/17/25 19:16	1/17/25 19:18	0:02:11	16313.43316	623.1853147	12126.85668	2.017734312	0	31.981435	1.0100928	0	178.77159	1		""	5.0517467
	716	"000000000840003234513965"	1/17/25 19:56	1/17/25 20:00	0:02:01	15196.57865	338.296016	10102.43615	0.607711324	0	31.954838	1.0102258	0	178.74038	1		""	4.3014249

# GreenFeed data

## How it looks the preliminary data?

- A record refers to when the visit is translated on a record in the data due to some criteria (e.g., >2 minutes).

FID		Animal ID	Date/Time		Gas records													
FeederID	AnimalName	RFID	StartTime	EndTime	GoodDataDuration	CO2GramsPerDay	CH4GramsPerDay	O2GramsPerDay	H2GramsPerDay	H2SGramsPerDay	AirflowLiters	AirflowCf	WindSpeedH	WindDirDeg	WindCf	WasInterrupt	InterruptingTime	TempPipeDeg
Day 1	716	"000000000840003250681853"	000000000840003250681853	1/17/25 15:57	1/17/25 16:02	0:04:03	11937.27945	413.1706076	8323.428782	1.458118937	0	32.036336	1.0098183	0	178.79661	1	""	7.7187098
	716	"000000000840003234513880"	000000000840003234513880	1/17/25 16:06	1/17/25 16:10	0:03:37	13949.42834	513.6369597	9635.877246	0.822802364	0	32.015106	1.0099245	0	178.81678	1	""	8.3500651
	716	"000000000840003250681886"	000000000840003250681886	1/17/25 16:24	1/17/25 16:27	0:02:08	15411.63206	321.3278208	10442.09501	0.53868698	0	32.036834	1.0098158	0	178.78703	1	""	7.7054621
	716	"000000000840003250681802"	000000000840003250681802	1/17/25 17:47	1/17/25 17:51	0:02:58	13688.66245	488.2964363	9175.229933	0.54728294	0	32.056347	1.0097183	0	178.79032	1	""	4.6788099
	716	"000000000840003250681853"	000000000840003250681853	1/17/25 18:36	1/17/25 18:39	0:03:21	15957.21263	646.2453375	10223.10354	3.785191748	0	32.099123	1.0095044	0	178.76738	1	""	4.2169024
	716	"000000000840003234513962"	000000000840003234513962	1/17/25 18:40	1/17/25 18:45	0:02:26	15863.67165	506.590961	9935.3091	1.002334145	0	31.988212	1.0100589	0	178.79591	1	""	4.8572011
	716	"000000000840003234513970"	000000000840003234513970	1/17/25 19:14	1/17/25 19:16	0:02:13	11793.95293	377.9065725	9229.520851	0.187687309	0	31.994322	1.0100284	0	178.68575	1	""	4.8502965
	716	"000000000840003234513881"	000000000840003234513881	1/17/25 19:16	1/17/25 19:18	0:02:11	16313.43316	623.1853147	12126.85668	2.017734312	0	31.981435	1.0100928	0	178.77159	1	""	5.0517467
Day 2	716	"000000000840003234513965"	000000000840003234513965	1/17/25 19:56	1/17/25 20:00	0:02:01	15196.57865	338.296016	10102.43615	0.607711324	0	31.954838	1.0102258	0	178.74038	1	""	4.3014249
	716	"000000000840003250681886"	000000000840003250681886	1/19/25 0:09	1/19/25 0:15	0:05:00	13183.24443	391.7282611	10060.82002	0.353498333	0	33.155902	1.0042205	0	178.70879	1	""	-19.31494
	716	"000000000840003287325016"	000000000840003287325016	1/19/25 0:17	1/19/25 0:25	0:06:21	13381.90598	433.665752	8806.080682	1.981819752	0	33.076789	1.0046161	0	178.62073	1	""	-18.19648
	716	"000000000840003234513965"	000000000840003234513965	1/19/25 0:34	1/19/25 0:38	0:03:35	14381.98045	428.6615936	10732.47823	2.169819032	0	33.145633	1.0042718	0	178.59255	1	""	-19.08508
	716	"000000000840003250681901"	000000000840003250681901	1/19/25 0:39	1/19/25 0:48	0:06:43	14543.24361	478.4556924	12427.65396	0.852624657	0	32.929528	1.0053524	0	178.65563	1	""	-17.92528
	716	"000000000840003234513970"	000000000840003234513970	1/19/25 0:50	1/19/25 0:55	0:04:53	13497.88193	424.2608148	10721.96175	0.343329325	0	33.031469	1.0048427	0	178.64464	1	""	-17.73593
	716	"000000000840003250681910"	000000000840003250681910	1/19/25 1:25	1/19/25 1:32	0:05:58	11362.72786	277.3173832	8253.945337	0.669969657	0	33.08887	1.0045556	0	178.61297	1	""	-20.25465
	716	"000000000840003250681882"	000000000840003250681882	1/19/25 1:42	1/19/25 1:46	0:03:27	14536.62706	597.7691179	11076.88992	1.383252169	0	32.97472	1.0051264	0	178.69908	1	""	-19.36938
	716	"000000000840003250681888"	000000000840003250681888	1/20/25 9:21	1/20/25 9:25	0:03:27	11709.76294	413.6870601	9778.643322	1.359603209	0	32.222525	1.0088874	0	178.54247	1	""	-25.64439

# GreenFeed data

## How it looks the preliminary data?

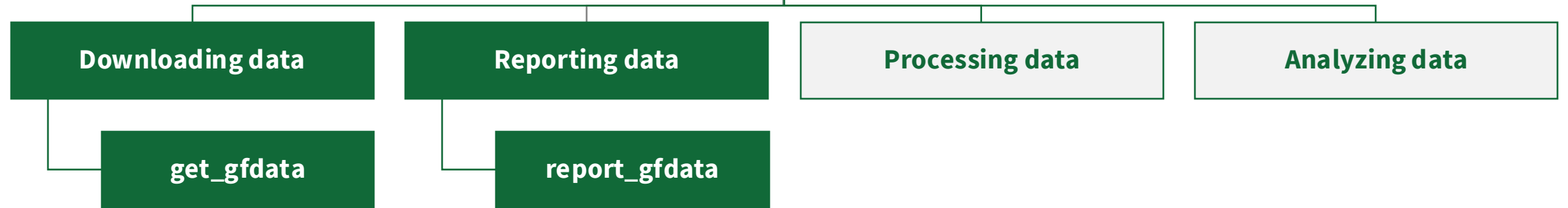
- A **record** refers to when the visit is translated on a record in the data due to some criteria (e.g., >2 minutes).

	FID		Animal ID		Date/Time		Gas records											
	FeederID	AnimalName	RFID	StartTime	EndTime	GoodDataDuration	CO2GramsPerDay	CH4GramsPerDay	O2GramsPerDay	H2GramsPerDay	H2SGran	AirflowLiters	AirflowCf	WindSpeedh	WindDirDeg	WindCf	WasInterrupt	InterruptingT
Day 1	716	"00000000840003250681853"	000000000840003250681853	1/17/25 15:57	1/17/25 16:02	0:04:03	11937.27945	413.1706076	8323.428782	1.458118937	0	32.036336	1.0098183	0	178.79661	1	""	7.7187098
	716	"00000000840003234513880"	000000000840003234513880	1/17/25 16:06	1/17/25 16:10	0:03:37	13949.42834	513.6369597	9635.877246	0.822802364	0	32.015106	1.0099245	0	178.81678	1	""	8.3500651
	716	"00000000840003250681886"	000000000840003250681886	1/17/25 16:24	1/17/25 16:27	0:02:08	15411.63206	321.3278208	10442.09501	0.53868698	0	32.036834	1.0098158	0	178.78703	1	""	7.7054621
	716	"00000000840003250681802"	000000000840003250681802	1/17/25 17:47	1/17/25 17:51	0:02:58	13688.66245	488.2964363	9175.229933	0.54728294	0	32.056347	1.0097183	0	178.79032	1	""	4.6788099
	716	"00000000840003250681853"	000000000840003250681853	1/17/25 18:36	1/17/25 18:39	0:03:21	15957.21263	646.2453375	10223.10354	3.785191748	0	32.099123	1.0095044	0	178.76738	1	""	4.2169024
	716	"00000000840003234513962"	000000000840003234513962	1/17/25 18:40	1/17/25 18:45	0:02:26	15863.67165	506.590961	9935.3091	1.002334145	0	31.988212	1.0100589	0	178.79591	1	""	4.8572011
	716	"00000000840003234513970"	000000000840003234513970	1/17/25 19:14	1/17/25 19:16	0:02:13	11793.95293	377.9065725	9229.520851	0.187687309	0	31.994322	1.0100284	0	178.68575	1	""	4.8502965
Day 2	716	"00000000840003234513881"	000000000840003234513881	1/17/25 19:16	1/17/25 19:18	0:02:11	16313.43316	623.1853147	12126.85668	2.017734312	0	31.981435	1.0100928	0	178.77159	1	""	5.0517467
	716	"00000000840003234513965"	000000000840003234513965	1/17/25 19:56	1/17/25 20:00	0:02:01	15196.57865	338.296016	10102.43615	0.607711324	0	31.954838	1.0102258	0	178.74038	1	""	4.3014249
	716	"00000000840003250681886"	000000000840003250681886	1/19/25 0:09	1/19/25 0:15	0:05:00	13183.24443	391.7282611	10060.82002	0.353498333	0	33.155902	1.0042205	0	178.70879	1	""	-19.31494
	716	"00000000840003287325016"	000000000840003287325016	1/19/25 0:17	1/19/25 0:25	0:06:21	13381.90598	433.665752	8806.080682	1.981819752	0	33.076789	1.0046161	0	178.62073	1	""	-18.19648
	716	"00000000840003234513965"	000000000840003234513965	1/19/25 0:34	1/19/25 0:38	0:03:35	14381.98045	428.6615936	10732.47823	2.169819032	0	33.145633	1.0042718	0	178.59255	1	""	-19.08508
	716	"00000000840003250681901"	000000000840003250681901	1/19/25 0:39	1/19/25 0:48	0:06:43	14543.24361	478.4556924	12427.65396	0.852624657	0	32.929528	1.0053524	0	178.65563	1	""	-17.92528
	716	"00000000840003234513970"	000000000840003234513970	1/19/25 0:50	1/19/25 0:55	0:04:53	13497.88193	424.2608148	10721.96175	0.343329325	0	33.031469	1.0048427	0	178.64464	1	""	-17.73593
Day 3	716	"00000000840003250681910"	000000000840003250681910	1/19/25 1:25	1/19/25 1:32	0:05:58	11362.72786	277.3173832	8253.945337	0.669969657	0	33.08887	1.0045556	0	178.61297	1	""	-20.25465
	716	"00000000840003250681882"	000000000840003250681882	1/19/25 1:42	1/19/25 1:46	0:03:27	14536.62706	597.7691179	11076.88992	1.383252169	0	32.97472	1.0051264	0	178.69908	1	""	-19.36938
	716	"00000000840003250681888"	000000000840003250681888	1/20/25 9:21	1/20/25 9:25	0:03:27	11709.76294	413.6870601	9778.643322	1.359603209	0	32.222525	1.0088874	0	178.54247	1	""	-25.64439
	716	"00000000840003250681908"	000000000840003250681908	1/20/25 10:57	1/20/25 11:00	0:02:34	15228.46137	591.45482	10505.10477	1.662371119	0	32.463959	1.0076802	0	178.55164	1	""	-25.39634
	716	"00000000840003287325016"	000000000840003287325016	1/20/25 11:01	1/20/25 11:04	0:03:23	11893.01474	201.029619	10086.42097	0.895961995	0	32.324396	1.008378	0	178.57052	1	""	-24.37435



# GreenFeed data management

What can greenfeedr be used for?



## **Question 2**

**How many GreenFeed units are you using simultaneously?**



# Reporting data

Fast checking, tracking, and reduces manual processing



# Reporting data

Fast checking, tracking, and reduces manual processing



```
report_gfdata(input_type = PRELIM | DAILY, exp = NAME, unit = FID, start_date = MM/DD/YY, save_dir = /DIR/, plot_opt = ALL|CH4|CO2|O2|H2>,
rfid_file = /FILE_PATH|DATAFRAME, user = USERNAME, pass = PASSWORD)
```

```
report_gfdata(input_type = FINAL, exp = NAME, unit = FID, start_date = MM/DD/YY, end_date = MM/DD/YY, save_dir = /DIR/,
plot_opt = ALL|CH4|CO2|O2|H2, rfid_file = /FILE_PATH|DATAFRAME, user = USERNAME, pass = PASSWORD, file_path = FINAL_REPORT)
```

# Reporting data

## Function: report\_gfdata

**@description** Generates a PDF report of preliminary or finalized GreenFeed data

**report\_gfdata(**

```
    input_type = "PRELIM",  
    exp = "Exp01",  
    unit = "305", # "304,305", c(304,305)  
    start_date = "02/20/2025", # "2025-02-20", "2/20/25"  
    end_date = "03/17/2025",  
    save_dir = "/Downloads/",  
    plot_opt = "ALL", # "CH4", "CO2", "O2"  
    rfid_file = "/Exp01/rfid_file.xlsx", # Col1=ID, Col2=RFID  
    user = "GUILLERMO",  
    pass = "GF1992"  
)
```

**@return** A CSV file with preliminary GreenFeed data and a PDF report

# Reporting data

## Function: report\_gfdata

**@description** Generates a PDF report of preliminary or finalized GreenFeed data

**report\_gfdata(**

```
    input_type = "PRELIM",
    exp = "Exp01",
    unit = "305", # "304,305", c(304,305)
    start_date = "02/20/2025", # "2025-02-20", "2/20/25"
    end_date = "03/17/2025",
    save_dir = "/Downloads/",
    plot_opt = "ALL", # "CH4", "CO2", "O2"
    rfid_file = "/Exp01/rfid_file.xlsx", # Col1=ID, Col2=RFID
    user = "GUILLERMO",
    pass = "GF1992"
)
```

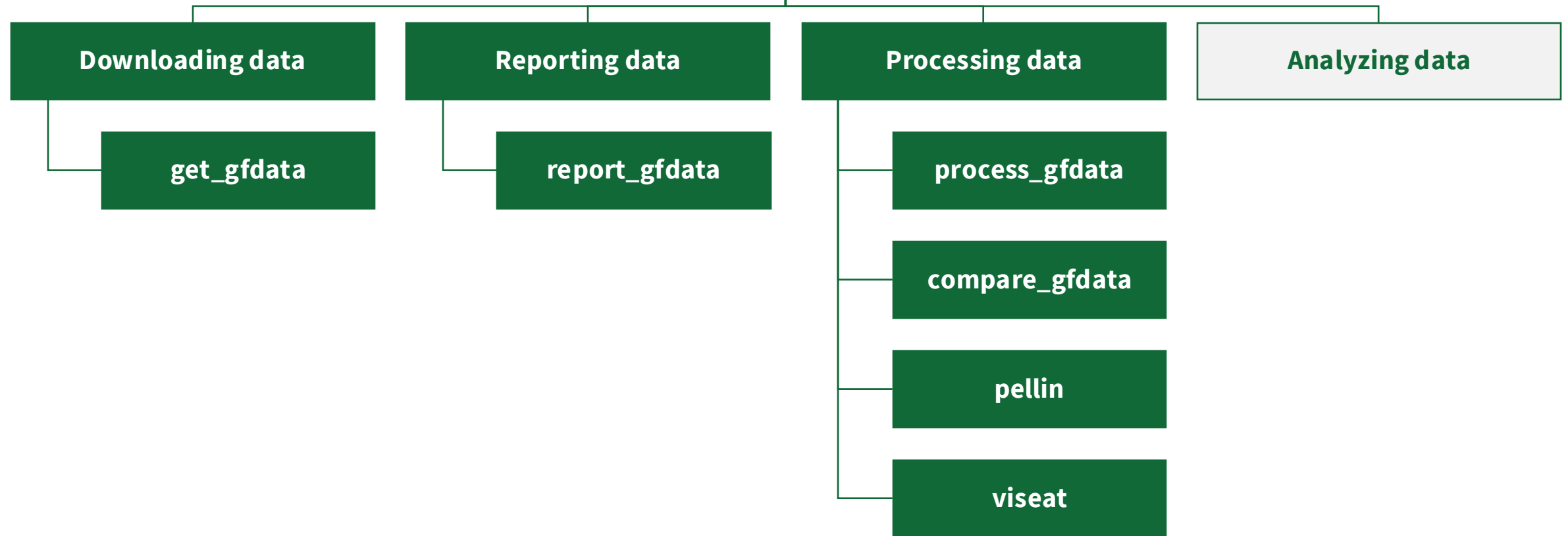
**@return** A CSV file with preliminary GreenFeed data and a PDF report

**report\_gfdata(**

```
    input_type = "FINAL", #Final
    exp = "Exp01",
    unit = "305", # "304,305", c(304,305)
    start_date = "02/20/2025", # "2025-02-20", "2/20/25"
    end_date = "03/17/2025",
    save_dir = "/Downloads/",
    plot_opt = "ALL", # "CH4", "CO2", "O2"
    rfid_file = "/Exp01/rfid_file.xlsx", # Col1=ID, Col2=RFID
    file_path = "/Exp01/SummarizedData_Date.xlsx"
)
```

# GreenFeed data management

What can greenfeedr be used for?





# Processing data

## Filtering and averages



# Processing data

## Filtering and averages



```
process_gfdata(data = DATAFRAME, start_date = MM/DD/YY, end_date = MM/DD/YY, param1 = records, param2 = days, min_time = 2, cutoff = 3)
```

## **Question 3**

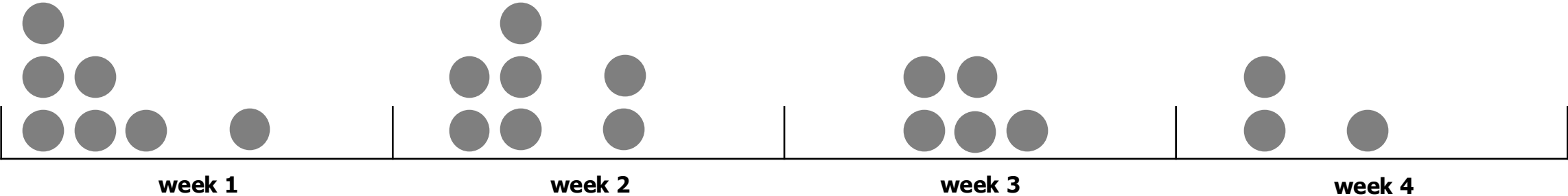
**What is the minimum number of records per animal needed to ensure reliable gas emissions?**

## Question 4

**How do you know that the gas records are well-distributed across day and weeks?**

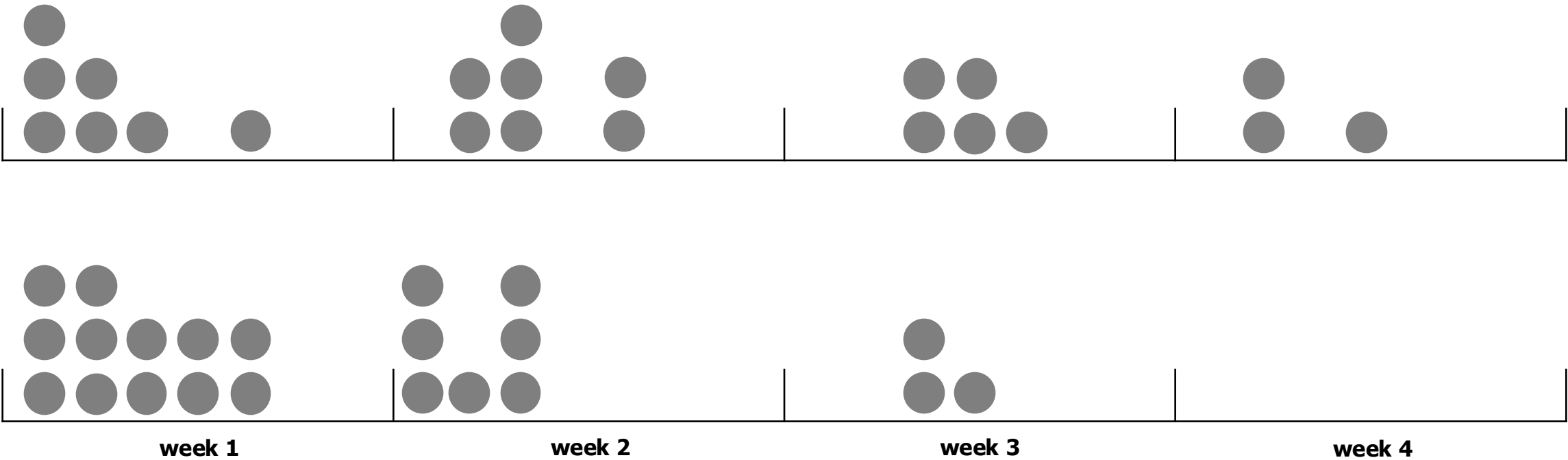
# Processing data

Cow 1992: threshold > 20 records



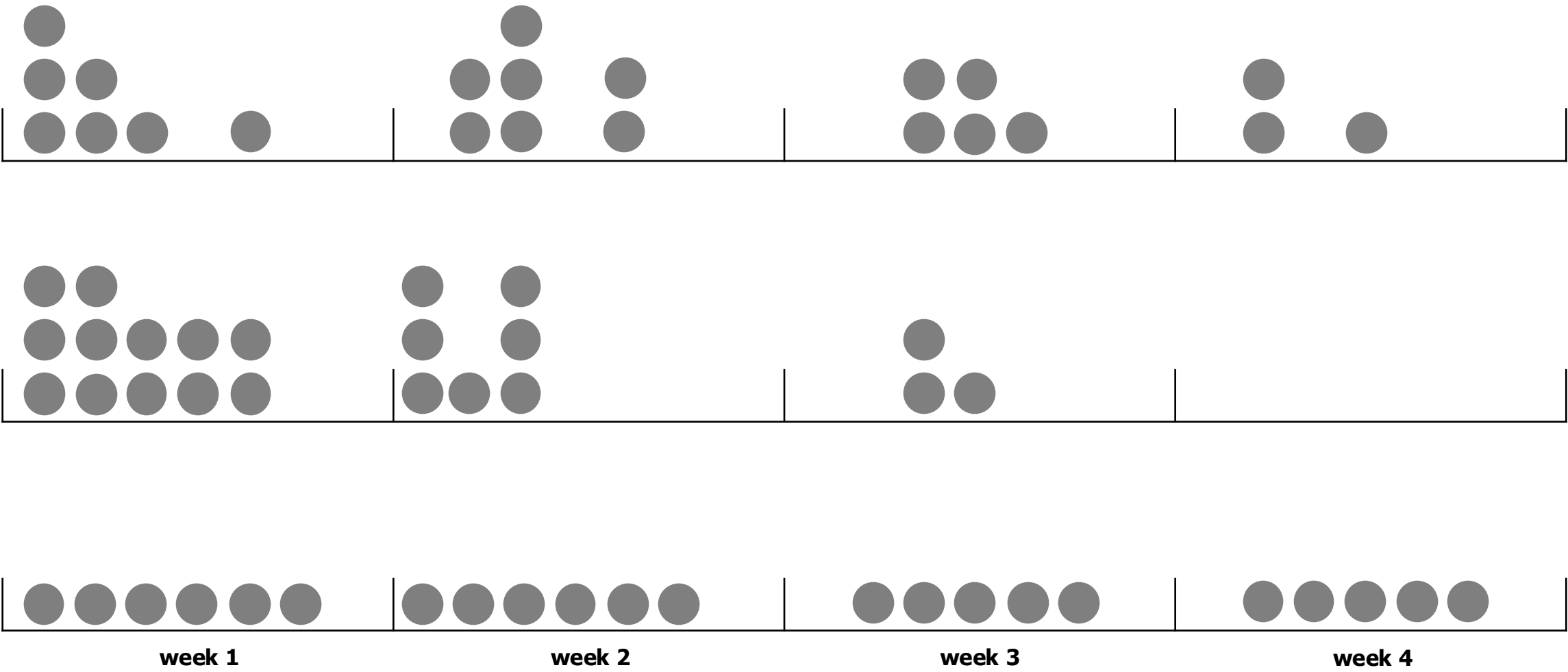
# Processing data

Cow 1992: threshold > 20 records



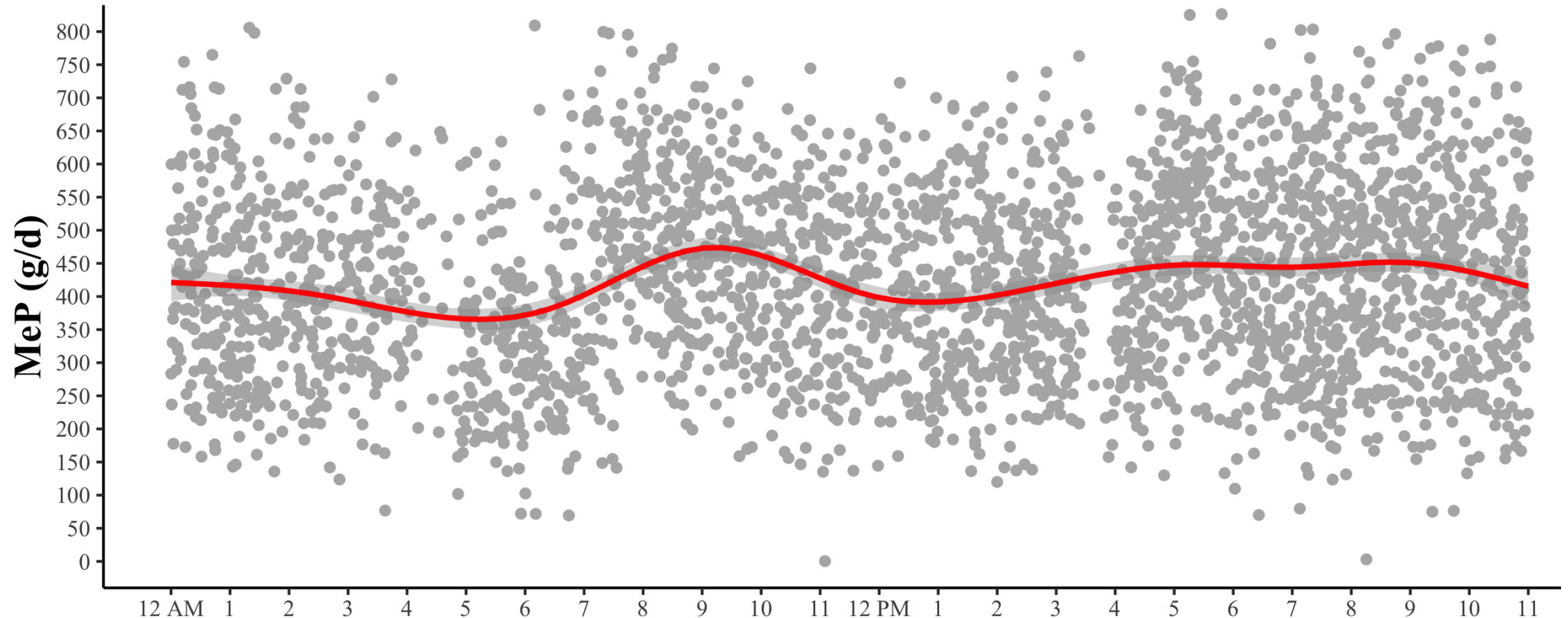
# Processing data

Cow 1992: threshold > 20 records



# Processing data

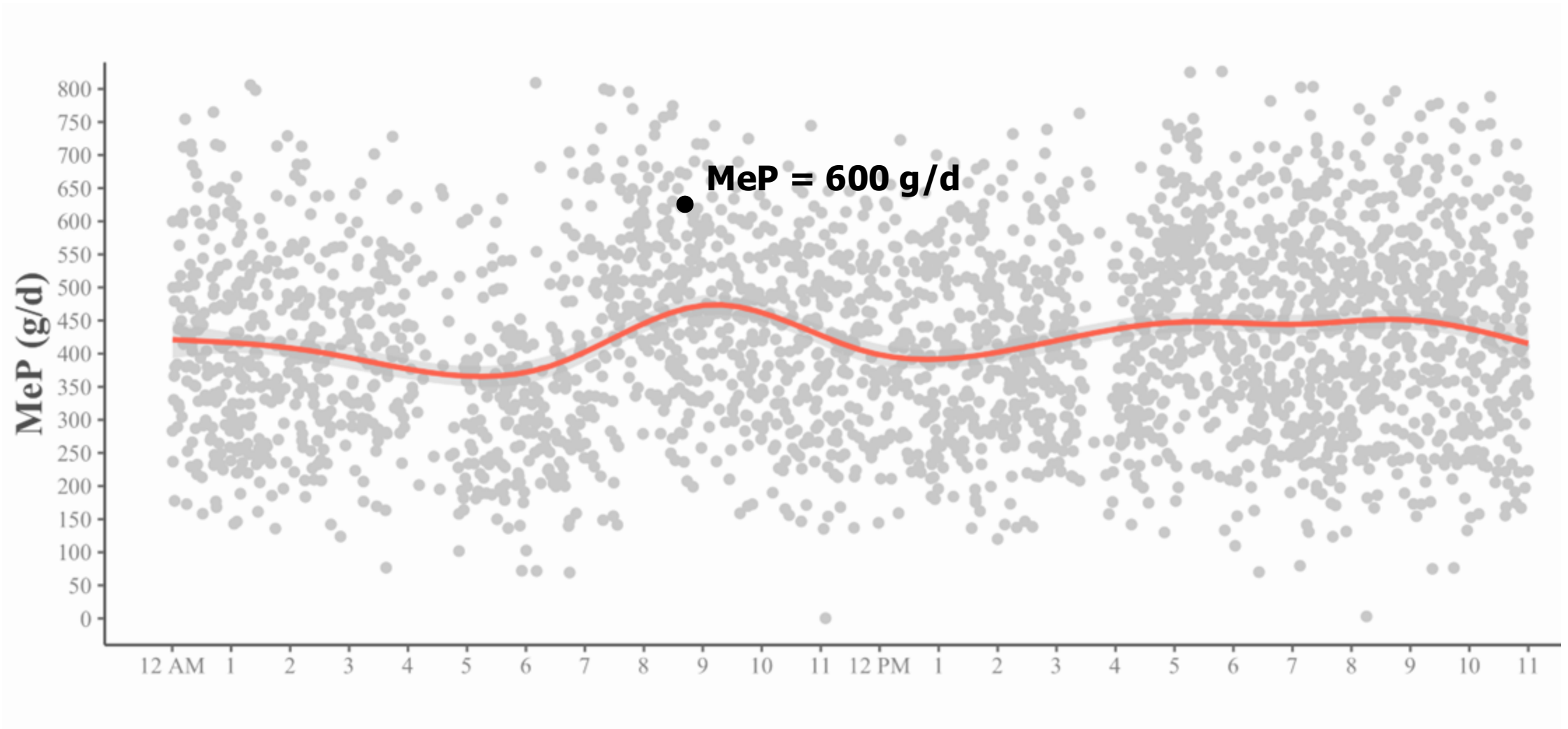
GreenFeed system: numerous short-term records across the day for multiple days





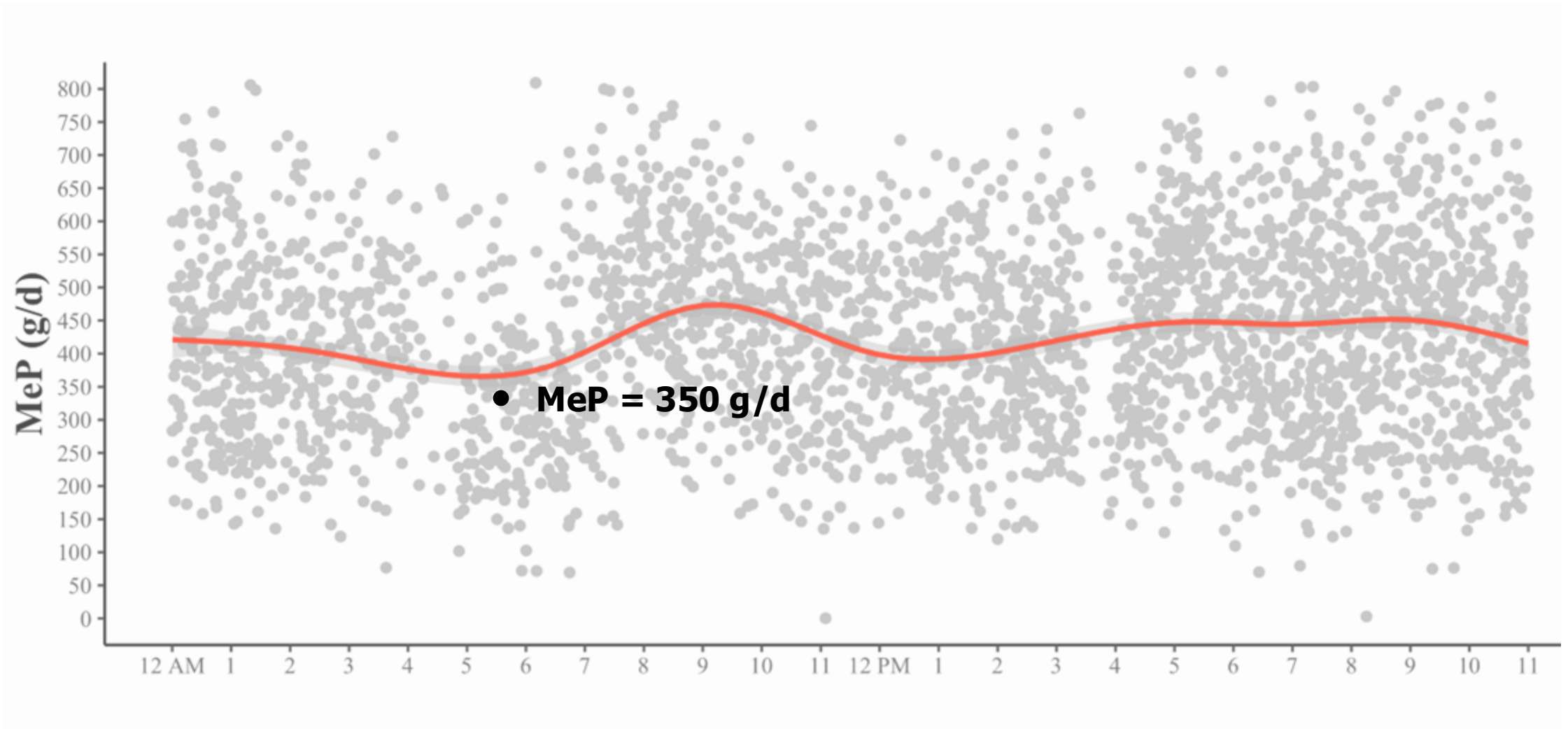
# Processing data

GreenFeed: numerous short-term records across the day for multiple days



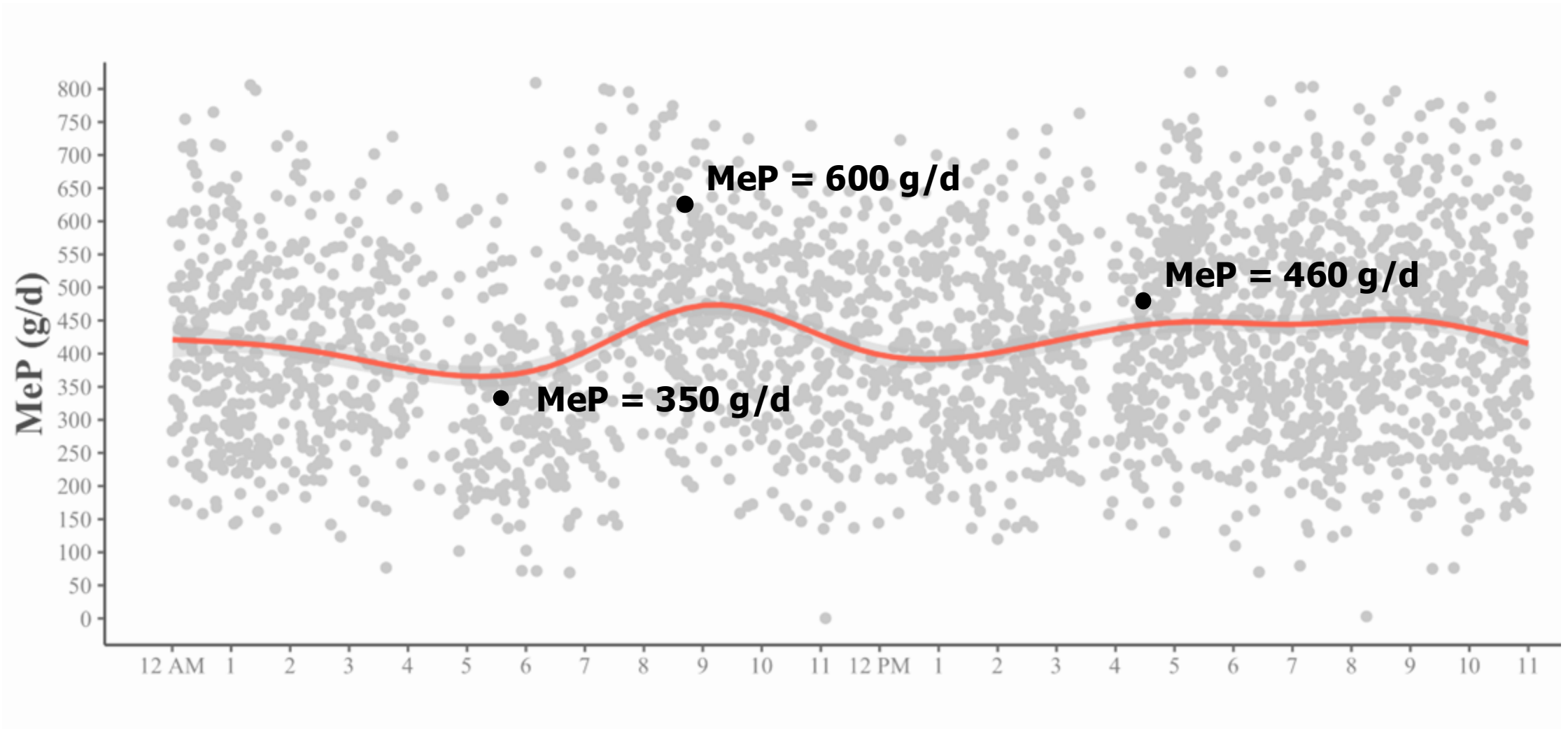
# Processing data

GreenFeed: numerous short-term records across the day for multiple days



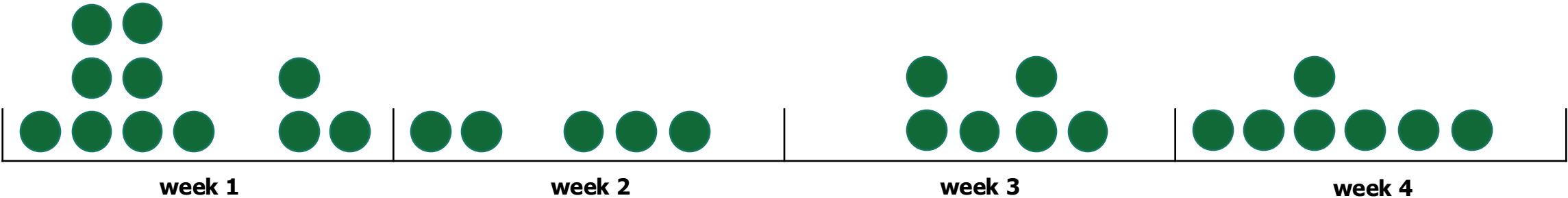
# Processing data

GreenFeed: numerous short-term records across the day for multiple days



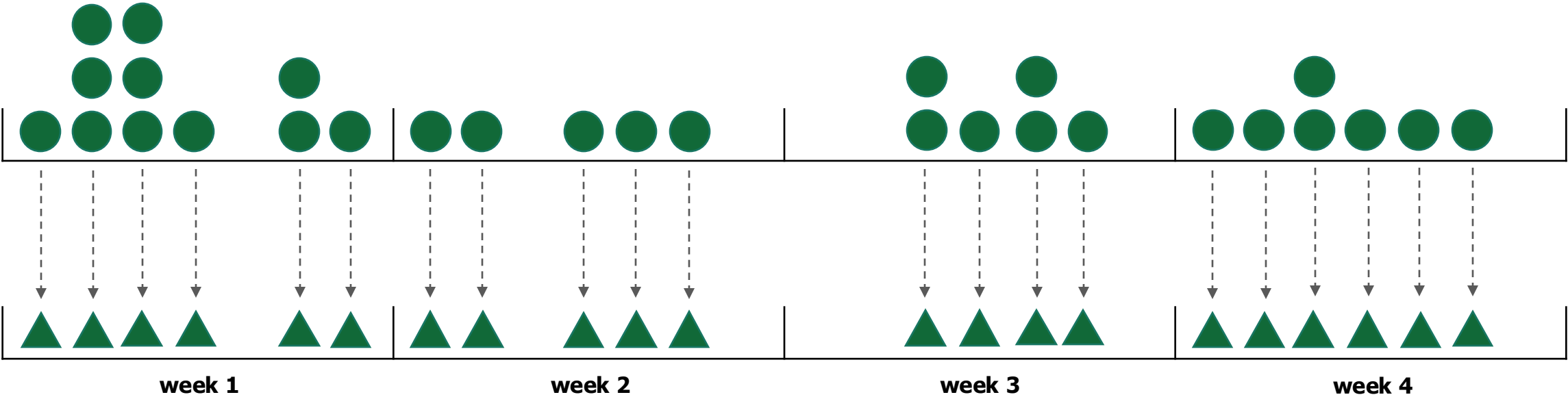
# Processing data

Cow 1218: at least 1 record per day and 1 day with records



# Processing data

Cow 1218: at least 1 record per day and 1 day with records

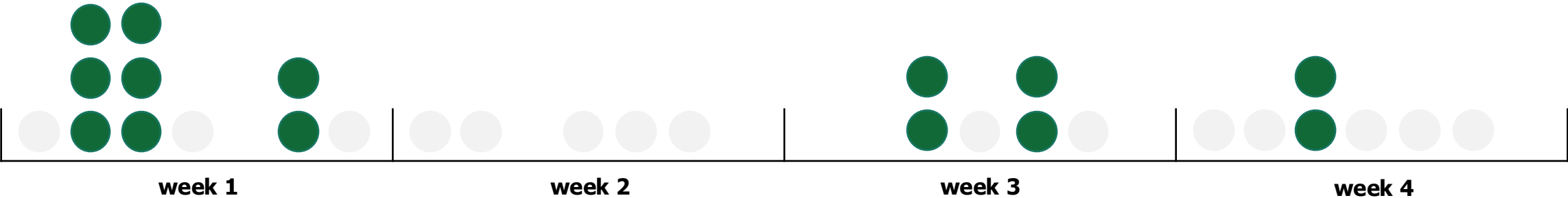


Cow 1218

29 records, 21 days, 4 weeks  
Average CH4 = 447 ± 79 g/d

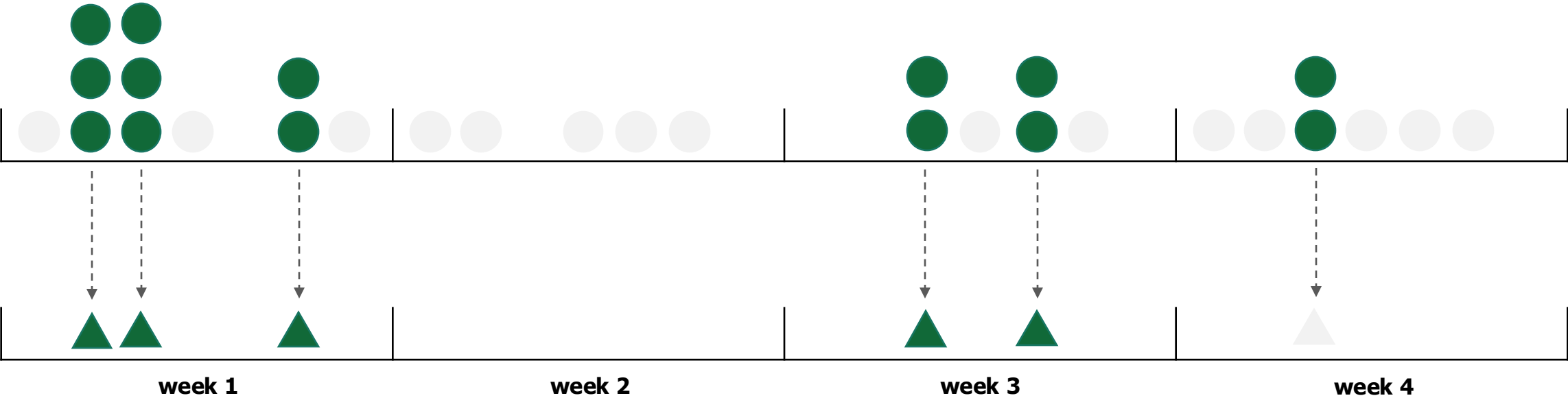
# Processing data

Cow 1218: at least 2 records per day and 2 days with records



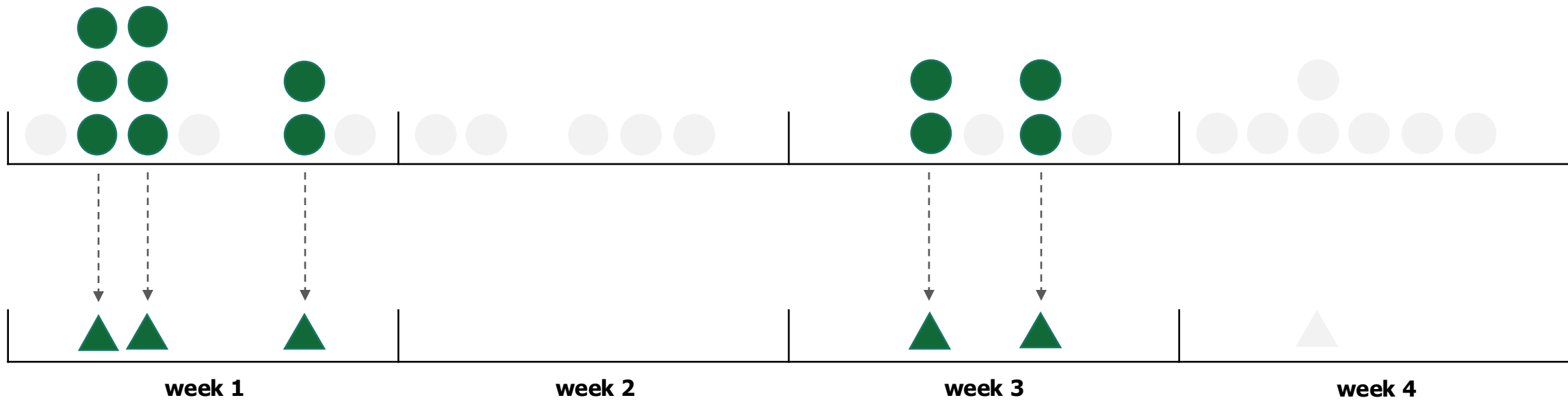
# Processing data

Cow 1218: at least 2 records per day and 2 days with records



# Processing data

Cow 1218: at least 2 records per day and 2 days with records



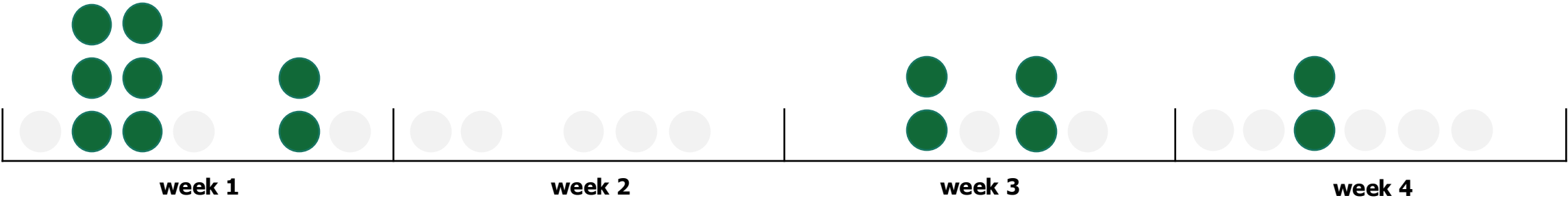
Cow 1218

12 records, 5 days, 2 weeks  
Average CH<sub>4</sub> = 382 ± 41 g/d



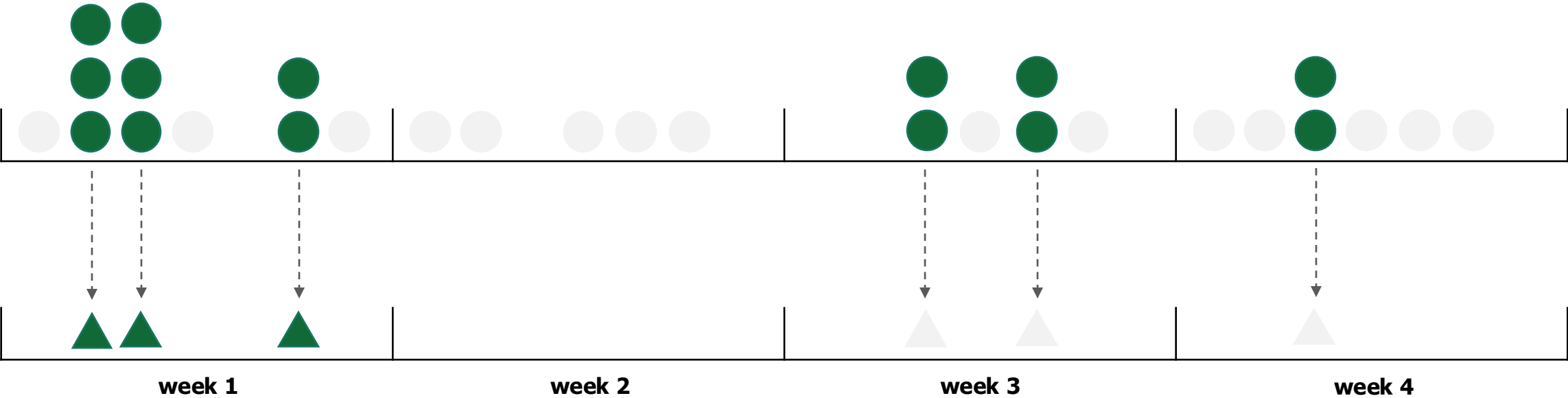
# Processing data

Cow 1218: at least 2 records per day and 3 days with records



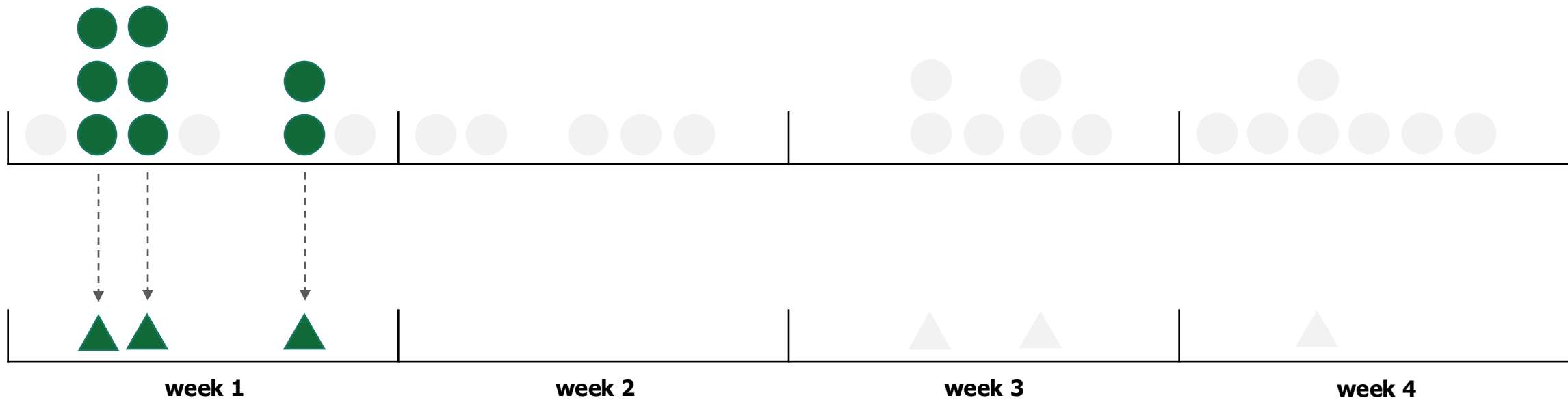
# Processing data

Cow 1218: at least 2 records per day and 3 days with records



# Processing data

Cow 1218: at least 2 records per day and 3 days with records

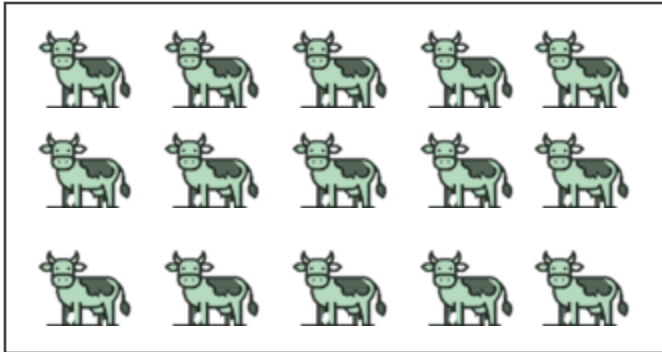


**8 records, 3 days, 1 week**  
Average CH<sub>4</sub> = 411 ± NA g/d

# Processing data

How to find the “best” combination of parameters?

**Parameters 2:1:2**

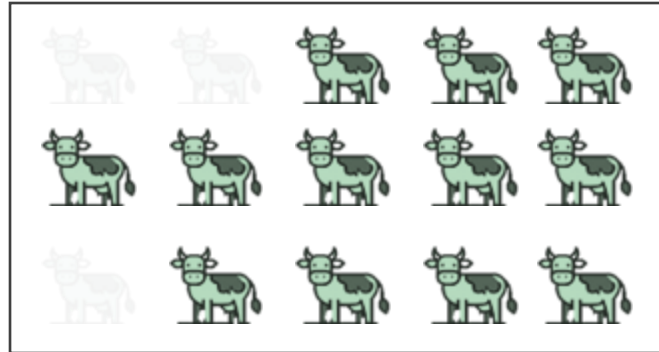


**236 records, 32 cows**

Average CH<sub>4</sub> =  $435 \pm 87$  g/d

CV CH<sub>4</sub> = 20%

**Parameters 3:3:2**

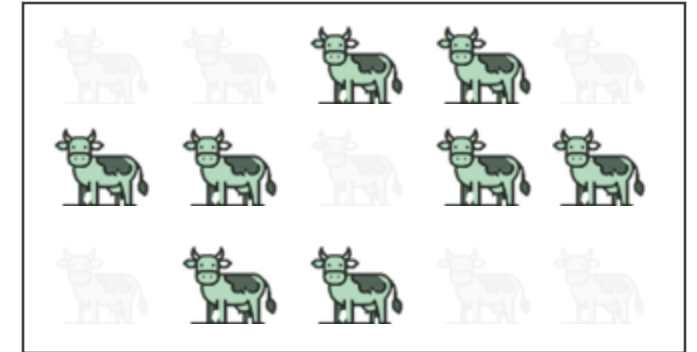


**82 records, 25 cows**

Average CH<sub>4</sub> =  $426 \pm 84$  g/d

CV CH<sub>4</sub> = 19.6%

**Parameters 3:5:2**



**31 records, 16 cows**

Average CH<sub>4</sub> =  $410 \pm 74$  g/d

CV CH<sub>4</sub> = 18.5%

# Processing data

Function: `eval_gfparam` and `process_gfdata`

**@description** Evaluate parameters that best fit for 'GreenFeed' data

```
eval_gfparam(  
    data = DATAFRAME,  
    start_date = MM/DD/YY,  
    end_date = MM/DD/YY  
)
```

**@return** A data frame with number of records, cows, and mean, SD, and CV for weekly data

# Processing data

## Function: eval\_gfparam and process\_gfdata

**@description** Evaluate parameters that best fit for 'GreenFeed' data

**eval\_gfparam**(data = **DATAFRAME**, start\_date = **MM/DD/YY**, end\_date = **MM/DD/YY**)

**@return** A data frame with number of records, cows, and mean, SD, and CV for weekly data

**@description** Process and calculates daily and weekly averages of GreenFeed data

**process\_gfdata**(

**data** = **"GF\_Data"**, #SummarizedData\_Date.xlsx

**start\_date** = **"02/20/2025"**,

**end\_date** = **"03/06/2025"**,

**param1** = **2**,

**param2** = **2**,

**min\_time** = **2**

)

**@return** A list of 3 data frames: filtered data, daily data, and weekly data

# Processing data

## Calculating pellet intakes and checking visits



# Processing data

## Calculating pellet intakes and checking visits



```
pellin(user = USERNAME, pass = PASSWORD, unit = FID, gcup = 34, start_date = MM/DD/YY, end_date = MM/DD/YY, save_dir = /DIR/,  
rfid_file = /FILE_PATH, file_path = /FEEDTIMES)
```

```
visseat(user = USERNAME, pass = PASSWORD, unit = FID, start_date = MM/DD/YY, end_date = MM/DD/YY,  
rfid_file = /FILE_PATH, file_path = /FEEDTIMES)
```



# Processing data

## Function: pellin

**@description** Processes feedtimes file to calculate pellet intakes

**pellin**(

user = "GUILLERMO",

pass = "GF1992",

unit = "305", # c(304, 305)

gcup = 34, # c(34, 45)

start\_date = "02/20/2025",

end\_date = "03/07/2025",

save\_dir = "/Downloads/",

rfid\_file = "/Exp01/rfid\_file.xlsx", #Col1=ID, Col2=RFID

)

**@return** An Excel file with pellet intakes for all animals and days within the specified period

# Processing data

## Function: viseat

**@description** Processes feedtimes file to check visits and drops

**pellin(**

**user =** "GUILLERMO",

**pass =** "GF1992",

**unit =** "305", # c(304, 305)

**start\_date =** "02/20/2025",

**end\_date =** "03/07/2025",

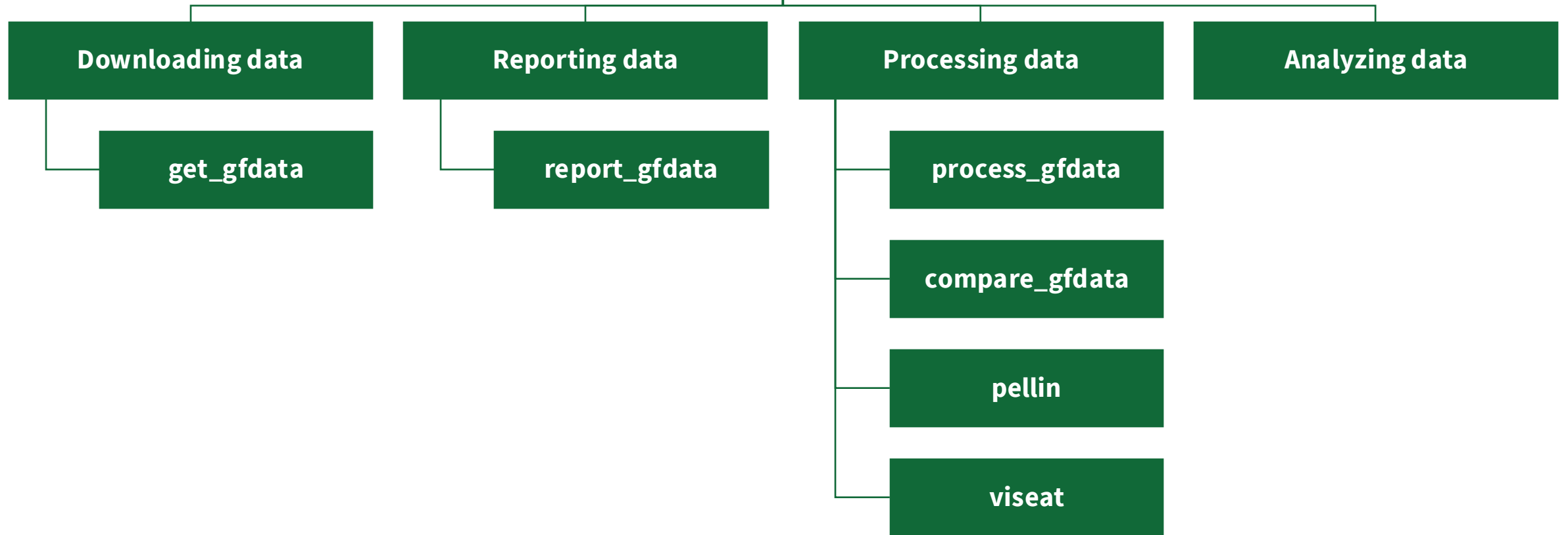
**rfid\_file =** "/Exp01/rfid\_file.xlsx", #Col1=ID, Col2=RFID

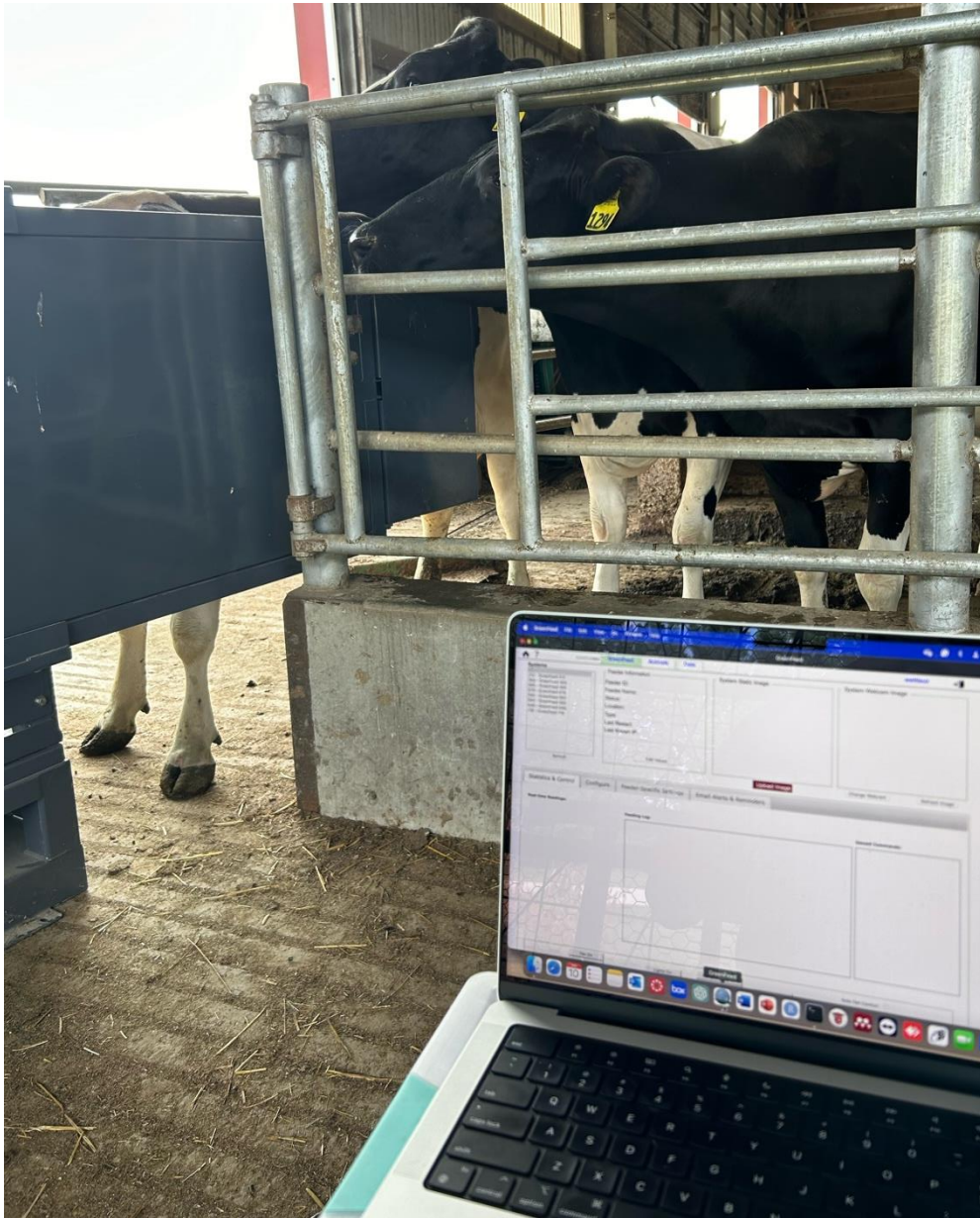
**)**

**@return** A list of two data frames: visits per unit and visits per animal

# GreenFeed data management

What can greenfeedr be used for?





**Thanks,  
and see you on Friday!**



**Guillermo Martinez Boggio**



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[github.com/GMBog](https://github.com/GMBog)



**Thank you for using the greenfeedr package!**

Martinez-Boggio et al. (2025). Greenfeedr: an R-package for processing and reporting GreenFeed data



United States Department of Agriculture  
National Institute of Food and Agriculture

