

# {a11ytables}

#EarlConf, September 2022

Matt Dray, Civil Service

# tl;dr

Generate best-practice spreadsheets  
with {a11ytables}

 [github.com/co-analysis/a11ytables](https://github.com/co-analysis/a11ytables)

 [co-analysis.github.io/a11ytables](https://co-analysis.github.io/a11ytables)



# Ahoy

I like R for automation/reproducibility  
...and for memes

 @mattdray

 matt-dray.com



# An opportunity

National statistics

# Latest UK egg statistics

Quarterly UK statistics about eggs.

From: [Department for Environment, Food & Rural Affairs](#)

Published 25 June 2013

Last updated 28 July 2022 — [See all updates](#)



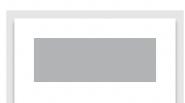
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National statistics

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### Documents



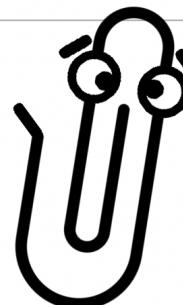
[Quarterly UK statistics about eggs - statistics notice \(data to June 2022\)](#)

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[Egg production and prices](#)

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[Egg production and prices](#)

Updated on: 28-Jul-22  
Next update: 27-Oct-22  
Classification: Public Domain

Contact: <redacted>  
Source: Quarterly UK Egg Packing Station Survey  
Units: Miscellaneous

**UK EGG PACKING STATION THROUGHPUT AND PRICES**

THROUGHPUT (Million Dozens)  
BY COUNTRY

Year	Quarter	E & W		Scotland		NI		Total UK		BY SYSTEM		Organic
		Enriched	Barn	Free Range	Organic							
1996	Q1	142.8	4.1	24.0		170.8		151.0	3.2	16.6		
	Q2	144.3	4.0	23.3		171.6		151.7	2.8	17.1		
	Q3	146.7	4.3	23.7		174.7		152.6	3.5	18.6		
	Q4	150.2	4.5	21.9		176.5		154.2	4.6	17.8		
1997	Q1	154.2	4.3	21.3		179.8		156.1	4.5	19.1		
	Q2	154.0	4.2	23.9		182.1		159.9	3.6	18.6		
	Q3	162.9	5.2	16.6		184.6		153.6	7.1	23.9		
	Q4	167.2	5.6	15.2		188.0		153.7	9.3	25.0		
1998	Q1	156.2	15.6	16.7		188.5		152.7	9.6	26.2		
	Q2	154.8	16.2	16.3		187.3		148.9	10.0	28.4		
	Q3	151.0	15.6	15.9		182.5		144.9	9.9	27.7		
	Q4	145.9	15.4	17.0		178.3		138.7	10.8	28.8		
1999	Q1	142.5	15.2	15.9		173.5		133.0	11.7	28.9		
	Q2	143.9	15.2	14.2		173.3		130.9	12.4	29.9		
	Q3	145.7	15.7	14.8		176.1		131.0	13.1	32.0		
	Q4	144.6	15.7	15.0		175.2		128.4	13.6	33.2		
2000	Q1	141.2	15.5	15.3		172.1		123.7	13.8	34.6		
	Q2	136.9	15.6	14.1		166.5		120.6	12.5	33.5		
	Q3	134.8	17.5	13.8		166.0		119.3	11.8	34.9		
	Q4	138.0	16.7	14.5		169.2		122.1	12.2	34.9		
2001	Q1	144.7	17.1	14.6		176.4		126.8	12.4	37.2		
	Q2	149.4	17.9	15.1		182.4		128.8	13.0	40.5		
	Q3	145.9	19.8	14.6		180.4		126.9	11.8	41.6		
	Q4	143.3	19.9	15.9		179.1		123.1	12.2	43.8		
2002	Q1	140.8	20.3	16.8		177.9		121.9	12.7	43.4		
	Q2	138.2	21.0	17.4		176.5		120.3	12.6	43.5		
	Q3	140.2	21.8	16.8		178.8		124.0	12.3	42.5		
	Q4	142.3	21.9	15.7		179.9		128.1	11.0	40.7		
2003	Q1	139.9	22.2	15.1		177.1		125.7	10.7	40.7		
	Q2	139.3	22.4	15.4		177.1		123.1	11.4	42.7		
	Q3	136.2	21.6	15.1		172.9		118.2	11.6	43.1		
	Q4	137.9	21.1	15.6		174.7		119.6	11.8	43.3		
2004	Q1	144.7	22.3	13.2		180.3		117.5	14.9	47.8		
	Q2	146.5	22.5	13.8		182.8		120.5	12.3	50.0		
	Q3	151.5	23.7	14.6		189.8		125.0	13.0	51.8		
	Q4	146.5	25.1	17.0		188.6		123.4	12.7	52.5		
2005	Q1	149.8	21.9	13.9		185.6		119.9	11.7	53.9		
	Q2	149.5	22.4	15.5		187.3		118.8	12.1	56.4		
	Q3	146.1	21.6	14.5		182.1		114.2	11.3	56.7		
	Q4	145.0	22.5	14.9		182.5		113.8	11.9	56.8		

AVERAGE PACKER TO PRODUCER PRICES (p/doz)

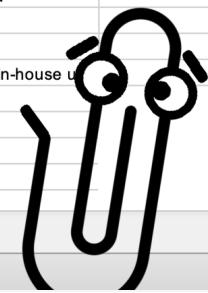
All Types	Enriched	Barn	Free Range	Organic
38.2	31.7	51.7	71.0	
36.1	28.9	51.7	68.0	
35.4	28.4	51.4	66.5	
36.8	29.2	51.9	68.0	
37.4	29.1	53.4	68.9	
34.5	26.0	52.0	64.1	
32.6	25.1	47.7	57.4	
34.7	27.3	45.7	58.8	
37.9	30.2	47.1	61.8	
38.9	31.1	49.2	62.9	
38.5	31.0	48.1	61.1	
43.5	37.1	50.1	63.6	
43.9	37.3	50.4	64.1	
39.7	33.2	45.7	58.4	
39.2	32.7	45.2	57.4	
41.4	34.8	45.3	59.0	
42.0	34.8	46.5	61.0	
42.1	34.5	47.0	61.7	
42.0	34.6	50.9	60.9	
43.3	36.2	55.8	62.3	
43.7	36.3	56.1	63.1	
44.7	37.0	55.1	64.3	
46.8	39.8	55.7	63.3	
50.1	42.1	60.6	69.4	
50.3	41.1	61.8	69.6	
51.7	41.4	59.6	74.5	
48.7	38.7	55.8	70.9	
46.4	36.2	53.2	68.9	
45.6	33.6	52.6	70.7	
43.6	31.5	50.7	67.6	
46.5	35.9	52.5	66.7	
47.0	36.6	52.0	66.6	

Packers Packers\_Annual Information +

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	Updated on: 28-Jul-22					Contact: <redacted>											
	Next update: 27-Oct-22					Source: Quarterly UK Egg Packing Station Survey											
	Classification: Public Domain					Units: Miscellaneous											
<b>UK EGG PACKING STATION THROUGHPUT AND PRICES</b>																	
THROUGHPUT (Million Dozens)					AVERAGE PACKER TO PRODUCER PRICES (p/doz)												
BY COUNTRY					BY SYSTEM												
Year	E & W	Scotland	NI	Total UK	Enriched	Barn	Free Range	Organic		All Types	Enriched	Barn	Free Range	Organic	Year		
1996	584	17	93	694	609	14	70			36.6	29.6	51.7	68.3		1996		
1997	638	19	77	735	623	25	87			34.8	26.9	49.6	62.1		1997		
1998	608	63	66	737	585	40	111			39.7	32.3	48.6	62.3		1998		
1999	577	62	60	698	523	51	124			41.0	34.5	46.7	59.6		1999		
2000	551	65	58	674	486	50	138			42.4	35.1	49.9	61.5		2000		
2001	583	75	60	718	506	49	163			46.3	38.7	56.9	65.1		2001		
2002	562	85	67	713	494	49	170			49.2	39.3	57.8	71.0		2002		
2003	553	87	61	702	487	45	170			45.7	34.4	51.9	67.9		2003		
2004	589	94	59	741	486	53	202			50.1	37.1	51.6	67.9	115.4	2004		
2005	590	88	59	738	467	47	224			58.6	43.2	55.7	77.9	129.5	2005		
2006	579	87	55	721	452	37	196	36		70.6	52.8	70.7	89.7	147.0	2006		
2007	550	101	56	706	436	28	201	41		72.6	55.4	72.7	90.3	143.0	2007		
2008	570	110	60	740	432	28	240	41		70.1	53.6	72.1	84.1	135.7	2008		
2009	560	116	63	738	403	31	274	30		70.0	53.9	72.7	83.1	131.3	2009		
2010	601	132	79	812	406	40	338	28		86.2	72.3	c	97.6	c	2010		
2011	611	115	81	808	394	32	356	25		90.2	74.3	c	105.2	c	2011		
2012	583	115	80	778	378	28	351	20		84.1	67.8	c	100.1	c	2012		
2013	603	114	90	807	408	27	354	18		82.1	64.1	c	98.8	c	2013		
2014	601	104	108	813	423	23	348	19		70.5	54.5	c	84.3	c	2014		
2015	613	107	116	835	426	20	369	20		70.1	53.7	c	82.5	c	2015		
2016	628	112	124	864	431	19	394	21		70.1	52.2	c	81.8	c	2016		
2017	647	118	134	899	432	11	435	21		70.9	53.6	c	80.3	c	2017		
2018	665	121	143	928	412	13	480	23		79.3	57.8	c	90.2	c	2018	44%	
2019	685	119	146	949	402	18	499	30		88.1	63.6	c	97.8	c	2019	42%	
2020	655	130	153	937	379	23	503	33							2020	40%	
2021	651	122	170	943	334	17	556	36							2021	35%	

**Footnotes:**

- Throughput was previously published in cases. To aid users who wish to convert this data from dozens into cases; there are 360 eggs or 30 dozens in a case.
- These data represents all Class A eggs passed over a grader, including seconds.
- Prices up to and including 2011 are a period end price and exclude bonus payments.
- From Q1 2012 prices shown are based on an average across the period and include bonus payments.
- From Q1 2006 the average UK All Types Price includes Organic eggs.
- 'c' confidential
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Updated on:   Updated on:

Updated on:   
Next update:

Contact: <redacted>

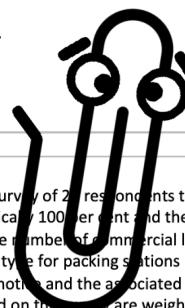
[www.gov.uk](http://www.gov.uk)

## Information and notes

### Data users:

Representatives of the egg and poultry industry are also major users of the data. The data on egg production volumes and egg type are the key sector indicators for British Egg Industry Council (BEIC) as they reflect the size of the national laying flock. The Home Grown Cereals Authority (HGCA), part of the Agricultural and Horticultural Development Board, rely on egg production data as a good indicator of the commercial layer flock and associated feed demand and hence grain usage by sector.

Other statistics are also often heavily referenced in industry publications such as "Poultry World".



### Methodology:

Defra runs a quarterly survey of registered UK egg packing stations. It is a voluntary sample survey of 2,000 respondents that collects information on throughput by production type and prices of graded eggs and sales of ungraded eggs. The response rate is typically 100 per cent and the survey accounts for 75 per cent of eggs packed in the UK. The survey figures are raised up to give UK estimates using information on the number of commercial laying hens, average egg yields, average mortality rates, the proportion of UK eggs that go through packing stations. Throughput by egg type for packing stations not surveyed is calculated using data provided by packing stations responding to the survey. The raised figures are published in this statistics notice and the associated datasets. The figures in this notice therefore represent all Class A eggs passed over a grader in the UK, including seconds. The prices obtained on the market are weighted according to the volume of eggs packed by each packing station to obtain average prices for the UK. From 2012, prices include any bonus payments paid to producers.

In tables that show numbers of eggs the units used are 'thousand cases'. There are 360 eggs in one case.

The data are subject to a variety of validation checks which identify inconsistencies in the data. All data are cleaned prior to publication.

The percentage changes shown are calculated using unrounded figures. Thus any percentage changes calculated using the published (rounded) figures may not agree exactly with the changes shown.

### Revisions policy:

Figures in this dataset are provisional and subject to revision. We will provide information about any revisions we make to previously published information in this dataset, and the associated statistics notice. Revisions could occur for various reasons including :

- a. if we have not received survey data from respondents we make an estimate based on their previous returns. These estimates will be replaced with actual survey data when it is received.
- b. survey respondents occasionally supply amended figures for previous periods.
- c. we may also revise the methodology used to raise the survey data to give UK totals.

# Guidance



# Releasing statistics in spreadsheets

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Publication date: 30 June 2021

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Author: Analysis Function Central Team

---

Who this is for: Anyone publishing spreadsheets on public sector websites

---

Type: Guidance

---

Contact: Analysis.Function@ons.gov.uk

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15 August 2022

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1 August 2022

### [Turning knowledge into action](#)

20 July 2022



# Making spreadsheets accessible: a checklist of the basics

Publication date: 7 July 2021

Author: Analysis Function Central Team

Who this is for: Anyone publishing government statistics in spreadsheets

Type: Guidance

Contact: [Analysis.Function@ons.gov.uk](mailto:Analysis.Function@ons.gov.uk)

For more information on any of these pointers, please see our main guidance:

[Releasing statistics in spreadsheets](#).

For more information on how to automate the process of creating accessible spreadsheets, read this blog post: [Automatically produce best practice spreadsheets](#).

## What '(E)' means

If a point in the checklist has '(E)' after it, it means it has been interpreted as essential to passing the accessibility regulations.

## Tables

[Tables section in main guidance](#)

### 1. Mark up tables (E)

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Empathy-spreadsheet

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File Insert Draw Page Layout Formulas Data Review View

X ✓ fx Table 1: Percentage of all people, children, pensioners and working-age adults who have a pet dinosaur (note: this data is made up for example purposes)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

Cover\_sheet Table\_1 +

dy



# Reproducible Analytical Pipelines (RAP) strategy

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7. [Where we are now](#)
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11. [How we will deliver this strategy](#)
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## Summary

+ [Short summary of this publication](#)

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[Reproducible Analytical Pipelines \(RAP\) case studies](#)

# Building a tool

# Requirements

1. Simple
2. Opinionated
3. Compliant
4. Known



# {a11ytables}



## Purpose

An R package to help automatically create reproducible spreadsheets that adhere to the latest guidance on [releasing statistics in spreadsheets](#) from the UK government's [Analysis Function Central Team](#), with a focus on accessibility ('a11y').

Visit [the {a11ytables} website](#) for documentation.

## Accessibility

This package is not intended for creating perfectly accessible spreadsheets but will help with the bulk of the work needed. Users of this packages should refer back to [the main spreadsheet guidance](#) or [the spreadsheet accessibility checklist](#) after using it to make sure nothing has been missed. Please email [analysis.function@ons.gov.uk](mailto:analysis.function@ons.gov.uk) if you use the package so they can monitor use and the outputs produced.

## Contribute

The package is under (opinionated) active development. Please see [the NEWS file](#) for the latest changes.

To contribute, please add [an issue](#) or [a pull request](#) after reading [the code of conduct](#) and [contributing](#) guidance.

## Install

Install the package [from GitHub](#) using [{remotes}](#).

```
install.packages("remotes") # if not already installed
remotes::install_github("co-analysis/a11ytables", build_vignettes = TRUE)
library(a11ytables) # attach package
```

## Links

[Browse source code](#)

[Report a bug](#)

## License

[Full license](#)

[MIT + file LICENSE](#)

## Community

[Contributing guide](#)

[Code of conduct](#)

## Citation

[Citing a11ytables](#)

## Developers

Crown Copyright

Copyright holder, funder

Matt Dray

Author, maintainer

[More about authors...](#)

## Dev status

repo status Active

CRAN not published

R-CMD-check passing

codecov 95%

# gptables

An opinionated python package  
for spreadsheet production.

 Watch

## Navigation

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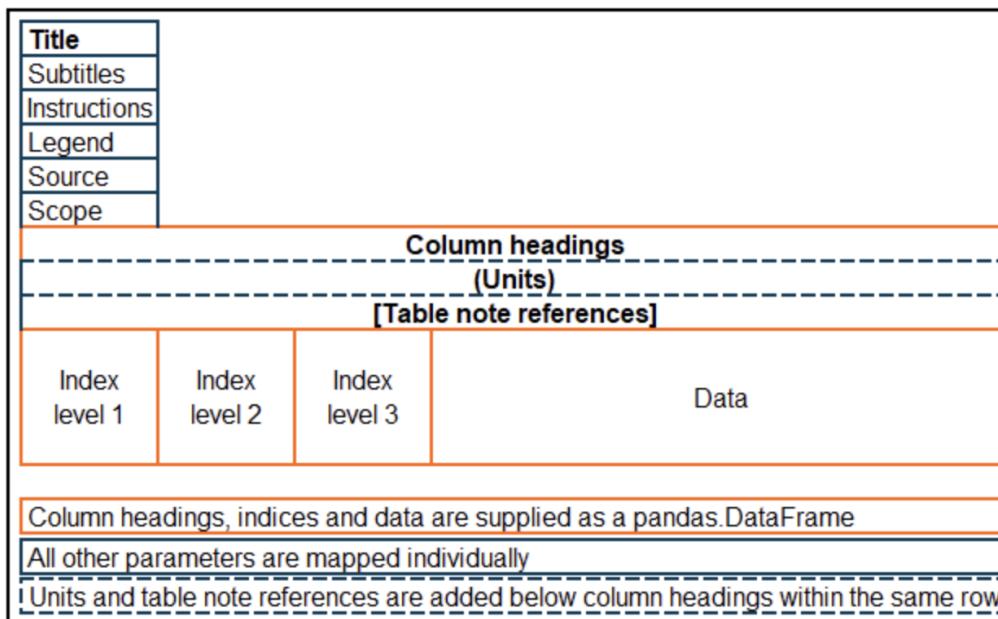
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# Good Practice Tables (gptables)

 continuous-integration  passing  pypi package  1.1.0

gptables produces .xlsx files from your pandas dataframes in either python or R (using [reticulate](#)). You define the mapping from your data to elements of the table and gptables does the rest.

Table element mapping:



gptables uses the official [guidance on good practice spreadsheets](#). It advocates a strong adherence to the guidance by restricting the range of possible operations. The default formatting theme gptheme accommodates many use cases. However, the **Theme** Class allows development of custom themes, where alternative formatting is required.

gptables is developed and maintained by the [Analysis Function](#). It can be installed from [PyPI](#) or [GitHub](#). The source code is maintained on GitHub. Users may also be interested in [a11ytables](#), an R native equivalent to gptables, and [csvcubed](#), a package for turning data and metadata into machine-readable CSV-W files.

# How

# Install

```
1 install.packages("remotes")
2
3 remotes::install_github(
4   "co-analysis/allytables",
5   build_vignettes = TRUE
6 )
7
8 library(allytables)
```

# Overview

```
1 create_alltable() |>  
2 generate_workbook() |>  
3 openxlsx::saveWorkbook()
```

# Overview

```
1 create_alltable(
2   tab_titles, sheet_types, sheet_titles, # required char vectors
3   blank_cells, sources,                  # optional char vectors
4   tables                                # required listcol of dat
5 ) |>
6 generate_workbook() |>
7 openxlsx::saveWorkbook("file.csv")
```

# Prep

```
1 source("eggs/eggs.R")
```

# Prep

```
1 source("eggs/eggs.R")
2 ls()
[1] "egg_blank_cells"    "egg_sheet_titles"  "egg_sheet_types"
"egg_sources"
[5] "egg_tab_titles"     "egg_tables"
```

# Prep

```
1 source("eggs/eggs.R")
2 ls()

[1] "egg_blank_cells"    "egg_sheet_titles" "egg_sheet_types"
"egg_sources"
[5] "egg_tab_titles"      "egg_tables"

1 egg_sheet_titles

[1] "UK egg packing station throughput and prices"
[2] "Contents"
[3] "Notes"
[4] "Table 1: Throughput by country, quarterly"
[5] "Table 2: Throughput by system, quarterly"
[6] "Table 3: Average packer to producer prices, quarterly"
[7] "Table 4: Throughput by country, annual"
[8] "Table 5: Throughput by system, annual"
[9] "Table 6: Average packer to producer prices, annual"
```

# Create

```
1 egg_at <- create_allytable()
```

# Create

```
1 egg_at <- create_allytable(  
2   tab_titles    = egg_tab_titles,  
3   sheet_types   = egg_sheet_types,  
4   sheet_titles  = egg_sheet_titles,  
5   blank_cells   = egg_blank_cells,  
6   sources       = egg_sources,  
7   tables        = egg_tables  
8 )
```

# Create

```
1 egg_at <- create_allytable(  
2   tab_titles    = egg_tab_titles,  
3   sheet_types   = egg_sheet_types,  
4   sheet_titles  = egg_sheet_titles,  
5   blank_cells   = egg_blank_cells,  
6   sources       = egg_sources,  
7   tables        = egg_tables  
8 )  
9  
10 class(egg_at)  
[1] "allytable"   "tbl"           "data.frame"
```

# A dataframe!

```
1 egg_at  
# allytable: 9 x 6  
  tab_title sheet_type sheet_title                                blank...1  
source table  
  <chr>      <chr>      <chr>                                <chr>  
<chr>  <named >  
1 Cover      cover      UK egg packing station throughput... <NA>      <NA>  
<df>  
2 Contents   contents   Contents                                <NA>      <NA>  
<df>  
3 Notes      notes      Notes                                 <NA>      <NA>  
<df>  
4 Table_1    tables     Table 1: Throughput by country, ... <NA>  
Quart... <tibble>  
5 tables_2    + tables_2  tables_2: throughput by continent ~ <NA>
```

# One row, one sheet

```
1 str(egg_at[egg_at$tab_title == "Table_2", ] )  
Classes 'allytable', 'tbl' and 'data.frame':      1 obs. of  6  
variables:  
$ tab_title  : chr "Table_2"  
$ sheet_type : chr "tables"  
$ sheet_title: chr "Table 2: Throughput by system, quarterly"  
$ blank_cells: chr NA  
$ source     : chr "Quarterly UK Egg Packing Station Survey."  
$ table      :List of 1  
..$ qtrly_system: tibble [424 × 4] (S3: tbl_df/tbl/data.frame)  
.. ..$ Year                  : chr  "1996" "1996" "1996" "1996" ...  
.. ..$ Quarter               : chr  "Q1"   "Q1"   "Q1"   "Q1"   ...  
.. ..$ System [note 1]        : chr  "Enriched" "Barn"  "Free Range"  
"Organic" ...  
.. ..$ Firms (million dozen) : chr  "151"  "2 2"  "16 6"  "101"
```

# Convert to Workbook

```
1 egg_wb <- generate_workbook(egg_at)
2 class(egg_wb)
[1] "Workbook"
attr(,"package")
[1] "openxlsx"
```

# Structured, styled

```
1 egg_wb
```

A Workbook object.

Worksheets:

Sheet 1: "Cover"

Custom row heights (row: height)

2: 34, 4: 34, 6: 34, 8: 34, 10: 34, 12: 34

Custom column widths (column: width)

1: 72

Sheet 2: "Contents"

Custom column widths (column: width)

# Write

```
1 openxlsx::saveWorkbook(  
2   egg_wb,  
3   "eggs/2022-07-28_eggs-packers_test.xlsx",  
4   overwrite = TRUE  
5 )
```

# Output

X ✓ fx UK egg packing station throughput and prices

## UK egg packing station throughput and prices

### Purpose

This publication gives quarterly information on egg production, usage and prices. This includes UK egg packing station throughput by country and egg production system (caged, barn, free range, organic) and prices paid by UK egg packers to producers. The information about egg usage includes the number of eggs bought by UK egg processors and the quantity of egg products they produce. Monthly information about trade in eggs and egg products is also included.

### Shorthand

Sheets in this workbook use shorthand: [z] means 'not applicable' because data was not collected and [c] means the value was suppressed for confidentiality reasons.

### Methodology

The survey runs a quarterly survey of registered UK egg packing stations. It is a voluntary sample survey of 27 respondents that collects information on throughput by production type and sales of graded eggs and sales of ungraded eggs. The response rate is typically 100 per cent and the survey accounts for 75 per cent of eggs packed in the UK. The survey figures are raised up to give UK estimates using information on the number of commercial laying hens, average egg yields, average mortality rates, the proportion of UK eggs that go through packing stations. Throughput by egg type for packing stations not surveyed is calculated using data provided by packing stations responding to the survey. The raised figures are published in this statistics notice and the associated datasets. The figures in this notice therefore represent all Class A eggs passed over a grader in the UK, including seconds. The figures obtained on the survey are weighted according to the volume of eggs packed by each packing station to obtain average prices for the UK. From 2012, prices include any bonus payments paid to producers.

Tables that show numbers of eggs the units used are 'thousand cases'. There are 360 eggs in one case.

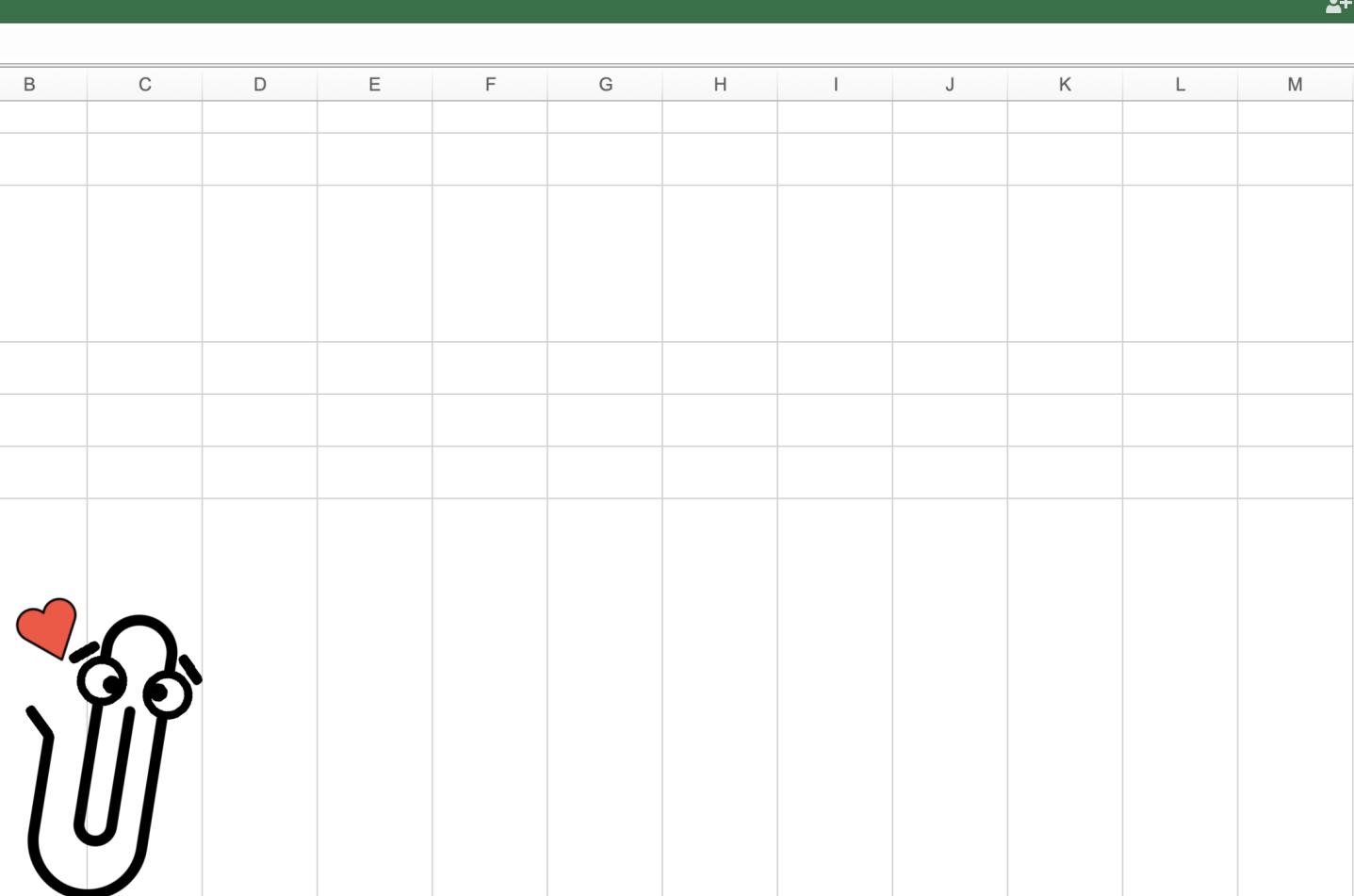
The data are subject to a variety of validation checks which identify inconsistencies in the data. All data are cleaned prior to publication.

The percentage changes shown are calculated using unrounded figures. Thus any percentage changes calculated using the published (rounded) figures may not equate exactly with the changes shown.

Throughput was previously published in cases. To aid users who wish to convert this data

### Revisions policy

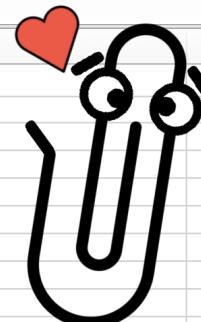
Figures in this dataset are provisional and subject to revision. We will provide information about any revisions we make to previously published information in this dataset, and the associated statistics notice. Revisions could occur for various reasons including: if we have received survey data from respondents we make an estimate based on their previous responses (these estimates will be replaced with actual survey data when it is received); if



Contents

This worksheet contains 1 table.

Sheet name	Sheet title
Notes	Notes
Table_1	Throughput by country, quarterly
Table_2	Throughput by system, quarterly
Table_3	Average packer to producer prices, quarterly
Table_4	Throughput by country, annual
Table_5	Throughput by system, annual
Table_6	Average packer to producer prices, annual



X ✓ fx Notes

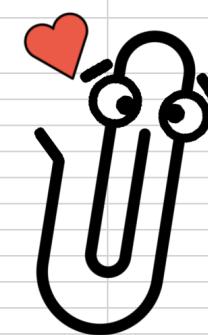
## Notes

This worksheet contains 1 table.

### Note number

### Note text

Note 1]	All eggs from free range and organic flocks have been re-labelled as barn eggs since 21st March 2022 due to avian influenza restrictions.
Note 2]	From Q1 2006 the average UK All Types Price includes Organic eggs.
Note 3]	Prices up to and including 2011 are a period end price and exclude bonus payments.
Note 4]	From Q1 2012 prices shown are based on an average across the period and include bonus payments.

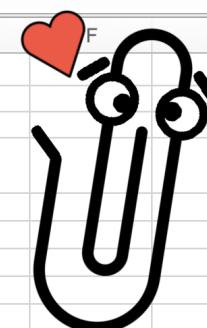


## Table 1: Throughput by country, quarterly

Table 1: Throughput by country, quarterly

This worksheet contains 1 table.

Source: Quarterly UK Egg Packing Station Survey.



Year	Quarter	Country	Eggs (million dozen)
1996	Q1	E & W	142.8
1996	Q1	Scotland	4.1
1996	Q1	NI	24
1996	Q1	Total UK	170.8
1996	Q2	E & W	144.3
1996	Q2	Scotland	4
1996	Q2	NI	23.3
1996	Q2	Total UK	171.6
1996	Q3	E & W	146.7
1996	Q3	Scotland	4.3
1996	Q3	NI	23.7
1996	Q3	Total UK	174.7
1996	Q4	E & W	150.2
1996	Q4	Scotland	4.5
1996	Q4	NI	21.9
1996	Q4	Total UK	176.5
1997	Q1	E & W	154.2
1997	Q1	Scotland	4.3
1997	Q1	NI	21.3
1997	Q1	Total UK	179.8
1997	Q2	E & W	154
1997	Q2	Scotland	4.2
1997	Q2	NI	23.9
1997	Q2	Total UK	182.1
1997	Q3	E & W	162.9
1997	Q3	Scotland	5.2
1997	Q3	NI	16.6
1997	Q3	Total UK	184.6
1997	Q4	E & W	167.2
1997	Q4	Scotland	5.6
1997	Q4	NI	15.2
1997	Q4	Total UK	188
1998	Q1	E & W	156.2
1998	Q1	Scotland	15.6
1998	Q1	NI	16.7
1998	Q1	Total UK	188.5
1998	Q2	E & W	154.8
1998	Q2	Scotland	16.2
1998	Q2	NI	16.3
1998	Q2	Total UK	187.3
1998	Q3	E & W	151

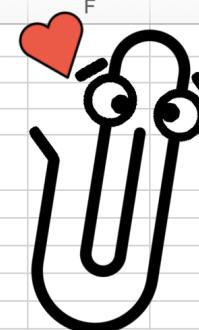
Table 2: Throughput by system, quarterly

**Table 2: Throughput by system, quarterly**

This worksheet contains 1 table.

This table contains notes, which can be found in the Notes worksheet.

Source: Quarterly UK Egg Packing Station Survey.



Year	Quarter	System [note 1]	Eggs (million dozen)
1996	Q1	Enriched	151
1996	Q1	Barn	3.2
1996	Q1	Free Range	16.6
1996	Q1	Organic	[z]
1996	Q2	Enriched	151.7
1996	Q2	Barn	2.8
1996	Q2	Free Range	17.1
1996	Q2	Organic	[z]
1996	Q3	Enriched	152.6
1996	Q3	Barn	3.5
1996	Q3	Free Range	18.6
1996	Q3	Organic	[z]
1996	Q4	Enriched	154.2
1996	Q4	Barn	4.6
1996	Q4	Free Range	17.8
1996	Q4	Organic	[z]
1997	Q1	Enriched	156.1
1997	Q1	Barn	4.5
1997	Q1	Free Range	19.1
1997	Q1	Organic	[z]
1997	Q2	Enriched	159.9
1997	Q2	Barn	3.6
1997	Q2	Free Range	18.6
1997	Q2	Organic	[z]
1997	Q3	Enriched	153.6
1997	Q3	Barn	7.1
1997	Q3	Free Range	23.9
1997	Q3	Organic	[z]
1997	Q4	Enriched	153.7
1997	Q4	Barn	9.3
1997	Q4	Free Range	25
1997	Q4	Organic	[z]
1998	Q1	Enriched	152.7
1998	Q1	Barn	9.6
1998	Q1	Free Range	26.2
1998	Q1	Organic	[z]
1998	Q2	Enriched	148.9
1998	Q2	Barn	10
1998	Q2	Free Range	28.4
1998	Q2	Organic	[z]

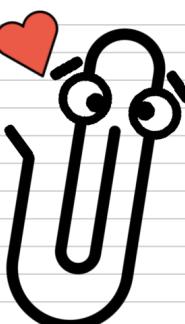
## Table 5: Throughput by system, annual

This worksheet contains 1 table.

This table contains notes, which can be found in the Notes worksheet.

Source: Quarterly UK Egg Packing Station Survey.

Year	System [note 1]	Average packer to producer prices (pence per dozen) [note 3] [note 4]
1996	Enriched	609
1996	Barn	14
1996	Free Range	70
1996	Organic	[z]
1997	Enriched	623
1997	Barn	25
1997	Free Range	87
1997	Organic	[z]
1998	Enriched	585
1998	Barn	40
1998	Free Range	111
1998	Organic	[z]
1999	Enriched	523
1999	Barn	51
1999	Free Range	124
1999	Organic	[z]
2000	Enriched	486
2000	Barn	50
2000	Free Range	138
2000	Organic	[z]
2001	Enriched	506
2001	Barn	49
2001	Free Range	163
2001	Organic	[z]
2002	Enriched	494
2002	Barn	49
2002	Free Range	170
2002	Organic	[z]
2003	Enriched	487
2003	Barn	45
2003	Free Range	170
2003	Organic	[z]
2004	Enriched	486
2004	Barn	53
2004	Free Range	202
2004	Organic	[z]
2005	Enriched	467
2005	Barn	47
2005	Free Range	224
2005	Organic	[z]



**But**

# Not perfect

- Garbage in, garbage out
- Opinionated
- User testing

# Clunk

- Not ods
- {openxlsx} has limitations
- Fiddly prep?

# Future

- YAML input
- Mirror gptables output
- Bugfixes, requests

**So**

# Can you

- improve accessibility?
- improve your processes?
- create common tools?

# tl;dr

Take a sad spreadsheet and make it  
better with {a11ytables}

 @mattdray

 matt-dray.com





# Credits

- Spreadsheet guidance: Hannah Thomas, Analysis Function
- gptables: Rowan Hemsi and contributors
- {a11ytables} contributors: Tim Taylor, Matt Kerlogue
- {openxlsx} and {pillar} contributors/maintainers
- OpenMoji: paperclip, heart (edited, CC BY-SA 4.0)

## 1 Setup

## 1.1 Packages

## 1.2 Data

## 2 Tidy-ish tables

## 2.1 Clean &amp; tidy tables

## 2.2 Almost-tidy tables

## 2.3 Meaningfully formatted rows

## 2.4 Meaningfully formatted cells

## 2.5 Layered meaningful formatting

## 2.6 Hierarchies in formatting

## 2.7 Sentinel values in non-text columns

## 3 Pivot tables

## 3.1 Simple unpivoting

## 3.2 Complex unpivoting

## 4 Small multiples

## 4.1 Small multiples with all headers present for each multiple

## 4.2 Same table in several worksheets/files (using the sheet/file name)

## 4.3 Same table in several worksheets/files but in different positions

## 4.4 Implied multiples

## 5 Formatting

## 5.1 An example formatting lookup

# Spreadsheet Munging Strategies

Duncan Garmonsway

## Welcome

This is a work-in-progress book about getting data out of spreadsheets, no matter how peculiar. The book is designed primarily for R users who have to extract data from spreadsheets and who are already familiar with the [tidyverse](#). It has a cookbook structure, and can be used as a reference, but readers who begin in the middle might have to work backwards from time to time.

R packages that feature heavily are

- [unpivotr](#): deals with non-tabular data, especially from spreadsheets.
- [tidyxl](#): imports non-tabular data from Excel files

Tidyxl and unpivotr are much more complicated than readxl, and that's the point. Tidyxl and unpivotr give you more power and complexity when you need it.

Please help me to improve this book by [opening a GitHub issue](#) or [tweeting](#).

### 0.0.0.1 Other ways to learn

Some resources give directions in the old way, using compass directions. See `?unpivotr::direction` for their modern counterparts.

- [YouTube videos](#)
- [Worked example code](#)
- [Blog post on `readr::melt\_csv\(\)`](#)