

Package ‘apsimwise’

October 13, 2026

Title Unified Access to the APSIMWISE Ecosystem

Version 0.1.0

Description Provides a unified interface to R packages supporting the Agricultural Production Systems sIMulator (APSIM), crop modelling, weather analysis, and agricultural decision support. It simplifies installation and loading of related packages and provides consistent user-facing functions across multiple crop types.

License MIT + file LICENSE

Encoding UTF-8

Depends R (>= 4.1.0)

Imports rapsimng (>= 0.6.0), rapsimng.wheat (>= 0.1.0), rapsimng.lupin (>= 0.1.0), rapsimng.chickpea (>= 0.1.0), rapsimng.fababean (>= 0.1.0), rapsimng.lentil (>= 0.1.0), rapsimng.canola (>= 0.1.0), tidyweather (>= 0.3.2)

Suggests testthat (>= 3.0.0), dplyr, knitr, quarto, ggplot2

Config/testthat/edition 3

URL <https://apsimwise.bangyou.me/>,
<https://github.com/byzheng/apsimwise>

BugReports <https://github.com/byzheng/apsimwise/issues>

Config/roxygen2/version 8.1.0

VignetteBuilder knitr, quarto

NeedsCompilation no

Author Bangyou Zheng [aut, cre]

Maintainer Bangyou Zheng <zheng.bangyou@gmail.com>

Repository CRAN

Date/Publication 2026-10-13 14:50:13 UTC

Contents

crop	2
thermal_time	3
vernalisation_days	5
Index	6

crop	<i>Access crop-specific model options</i>
------	---

Description

Returns the options manager associated with a crop. The returned object can be used to inspect and modify crop-specific parameters such as thermal time and vernalisation responses.

Usage

```
crop(name)
```

Arguments

name	Character string specifying the crop name. Supported crops include (case-insensitive): "wheat", "canola", "chickpea", "lupin", "fababean", and "lentil".
------	--

Value

An options manager object created by `optree::create_options_manager()`.

Examples

```
# Get the lentil options manager
l <- crop("lentil")

# View all options
l$get()

# Retrieve thermal time parameters
l$get("phenology.thermal_time")

# Modify an option
l$set(
  "phenology.thermal_time" =
    list(
      x = c(0, 25, 35),
      y = c(0, 25, 0)
    )
)
```

thermal_time	<i>Calculate thermal time for a crop</i>
--------------	--

Description

Calculate thermal time for a crop

Usage

```
thermal_time(..., crop)
```

Arguments

...	Arguments passed to the selected crop's thermal time function.
crop	The crop model to use. Supported crops are wheat, canola, chickpea, lupin, fababean, and lentil.

Value

A vector of thermal time values for the specified crop.

Examples

```
library(apsimwise)
# Example weather data
mint <- c(0, 10)
maxt <- c(30, 40)
date <- as.Date(c("2024-01-01", "2024-01-02"))

# Use default lupin parameters
thermal_time(
  mint,
  maxt,
  date = date,
  lat = -27,
  crop = "lupin"
)

# Modify the global lupin thermal time response for all following calculations
crop("lupin")$set(
  "phenology.thermal_time" =
    list(
      x = c(0, 25, 35),
      y = c(0, 25, 0)
    )
)
thermal_time(
  mint,
  maxt,
```

```

    date = date,
    lat = -27,
    crop = "lupin"
  )

# Then the parameters can be reset
crop("lupin")$reset()

# Override thermal time parameters for a single call
thermal_time(
  mint,
  maxt,
  date = date,
  lat = -27,
  crop = "lupin",
  x_temp = c(0, 25, 35),
  y_temp = c(0, 25, 0)
)

# Calculate thermal time from a weather file
met_file <- system.file("extdata/ppd_72150.met", package = "tidyweather")
# Read weather records
records <- read_weather(met_file)
# Calculate thermal time for lupin using tidyverse ways
library(dplyr)
records |>
  mutate(
    tt = thermal_time(
      mint = mint,
      maxt = maxt,
      date = date,
      latitude = latitude[1],
      crop = "lupin"
    )
  ) |>
  select(name, date, mint, maxt, tt)
# Calculate thermal time for lupin grouped by year and site if there are multiple sites
# Create some fake data for a second site
records2 <- records |>
  mutate(
    name = "site2",
    mint = mint + 1,
    maxt = maxt + 1,
    latitude = latitude - 10
  ) |>
  bind_rows(records)
# Calculate thermal time for lupin grouped by site
records2 |>
  group_by(name) |>
  mutate(
    tt = thermal_time(
      mint = mint,

```

```
        maxt = maxt,  
        date = date,  
        latitude = latitude[1],  
        crop = "lupin"  
    )  
  ) |>  
  select(name, date, mint, maxt, tt)
```

vernalisation_days	<i>Calculate vernalisation days for a crop</i>
--------------------	--

Description

Calculate vernalisation days for a crop

Usage

```
vernalisation_days(..., crop)
```

Arguments

...	Arguments passed to the selected crop's vernalisation days function.
crop	The crop model to use. Supported crops are canola, chickpea, lupin, fababean, and lentil.

Value

A vector of vernalisation days for the specified crop.

Examples

```
mint <- c(0, 10)  
maxt <- c(30, 40)  
vernalisation_days(mint, maxt, crop = "lupin")
```

Index

crop, [2](#)

thermal_time, [3](#)

vernalisation_days, [5](#)