

Package ‘TrackTrap’

June 13, 2026

Title Model Cumulative Growing Degree-Days for Pest Monitoring

Version 1.0.0

Description Pest monitoring is crucial, especially during the early season, to understand the distribution and the proliferation of the target pest. Raw count data from pest monitoring/traps can be coupled with environmental variables such as temperature, growing degree-day ('GDD') etc. to get useful insights about the pest phenology. This package pulls temperature data from the California Irrigation Management Information System ('CIMIS', <<https://cimis.water.ca.gov>>), the 'Daymet' application programming interface ('API', <<https://daymet.ornl.gov>>), or 'Open Meteo' ('API', <<https://open-meteo.com/>>) sequentially for a user-specified time period and calculates cumulative growing degree-days. Users provide pest development thresholds (lower and upper temperatures), pest of concern, and the geographic coordinates of the trap location to track emergence and phenology.

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Encoding UTF-8

Depends R (>= 3.5)

LazyData true

Imports curl, daymetr, degday, dplyr, ggplot2, httr, jsonlite, magrittr, rlang, xml2

Config/roxygen2/version 8.0.0

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

RoxygenNote 8.0.0

NeedsCompilation no

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calc_pest_phenology *Calculate Pest Phenology*

Description

Calculate Pest Phenology

Usage

```
calc_pest_phenology(
  trap_data,
  pest = NULL,
  lat = NULL,
  lon = NULL,
  weather_source = "open_meteo",
  cimis_csv_path = NULL,
  custom_lower = NULL,
  custom_upper = NULL
)
```

Arguments

trap_data	A data frame containing trap counts
pest	Name of the pest
lat	Latitude
lon	Longitude
weather_source	Weather data source
cimis_csv_path	Path to the CIMIS csv file
custom_lower	Lower developmental threshold
custom_upper	Upper developmental threshold

fetch_open_meteo	<i>Fetch Open-Meteo Data</i>
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Description

Retrieves weather data from the Open-Meteo API.

Usage

```
fetch_open_meteo(lat, lon, start_date, end_date = as.character(Sys.Date()))
```

Arguments

lat	Latitude
lon	Longitude
start_date	Start date format (YYYY-MM-DD)
end_date	End date format (YYYY-MM-DD)

Value

A dataframe with Date, tmax (F), and tmin (F)

pest_thresholds	<i>Pest Developmental Thresholds</i>
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Description

A dataset containing the lower and upper developmental temperature thresholds (in Fahrenheit) for common agricultural pests in California.

Usage

```
pest_thresholds
```

Format

An object of class `data.frame` with 104 rows and 7 columns.

Details

pest_code Short abbreviation for the pest (e.g., OLFF, NOW)

pest_name Common name of the pest

lower_thresh Lower developmental temperature threshold (°F)

upper_thresh Upper developmental temperature threshold (°F)

`plot_trap_phenology` *Plot Trap Phenology with Flight Markers*

Description

Plot Trap Phenology with Flight Markers

Usage

```
plot_trap_phenology(pheno_data, pest = NULL)
```

Arguments

<code>pheno_data</code>	Phenology data frame
<code>pest</code>	Name of the pest

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