



## DATASET DESCRIPTION

### *Phenological observations of fruit-bearing plants from beginning of sprouting to ripening, also falling of leaves for some species (annual reporters, historical)*

**Version:** v009

**Publication date:**

**Cite data set as:** Phenological observations of fruit-bearing plants from beginning of sprouting to ripening, also falling of leaves for some species (annual reporters, historical), Version v009

**Dataset-ID:** urn:x-wmo:md:de.dwd.cdc::obsgermany-phenology-annual\_reporters-fruit-historical

**Dataset-URL:** [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/annual\\_reporters/fruit/historical](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/fruit/historical)

### ABSTRACT

The phenological data provide an overview of plant development in Germany over the year. The data are collected by volunteer observers and reported to DWD.

### POINT OF CONTACT

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### DATASET DESCRIPTION

<b>Parameter</b>	Birnen, Süßkirschen, Pflaumen, apricot, Johannisbeeren, Äpfel, Stachelbeeren, peach, strawberry, Sauerkirschen, blackberry, raspberry
<b>Temporal coverage</b>	1951-01-01 -- 2021-12-31
<b>Spatial coverage</b>	Germany
<b>Projection</b>	WGS 84 (EPSG:4326)
<b>Format description</b>	Each file PH_Jahresmelder* contains the observation of a certain species (e.g., gooseberry), with fixed object_id (e.g., 350). The rows are sorted according to Stations_id, reference year, phase_id. Each row corresponds to one observation. The list with all phenological stations and corresponding meta-data can be found here: <a href="https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Stationen_Jahresmelder.txt">https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Stationen_Jahresmelder.txt</a> .

**application schema** csv dialect description

delimiter	line terminator	header	quote char
;	\\r\\n	true	"

csv content description

column name	description	uom	type	format
<b>Stations_id</b>	DWD Station ID		VARCHAR2	
<b>Referenzjahr</b>	year corresponding to phase		NUMBER	YYYY
<b>Qualitaetsniveau</b>	quality flags		NUMBER	numerical code
<b>Objekt_id</b>	identifier of the phenological object		NUMBER	990
<b>Phase_id</b>	identifier of the phenological stage		NUMBER	
<b>Eintrittsdatum</b>	date of observation		NUMBER	YYYYMMDD
<b>Eintrittsdatum_QB</b>	quality flag		NUMBER	
<b>Jultag</b>	day of the year		NUMBER	DDD

**Quality Information** The QUALITAETS\_NIVEAU (QN) shows the quality control procedure applied for a data report (of several parameters) for a certain reporting time.

QN = 1 : only formal control;  
 QN = 7 : second control done, before correction;  
 QN = 10 : quality control finished, all corrections finished.

The QUALITAETS\_BYTE (QB) denotes whether the value was objected to and/or corrected.

QB = 1 : had no objections;  
 QB = 2 : corrected;  
 QB = 3 : confirmed with objection rejected;  
 QB = 5 : doubtful;  
 QB = 8 : incorrect;

## DATA ORIGIN

A fixed observation area is assigned to every phenological observer. Each observation area has a station-id assigned by the network administration. The observer registers the beginning of determined growth stages (pheno phases) and notes the date in the phenological observation journal, as soon as it occurred. It is important not to change the observed plant (tree, bush), the chosen plant is to be observed as much years as possible. At the end of the year, the observer send the completed observation sheet to the network operator for data recording. In the long run, this system will be replaced by online data transmission (2020: about 50 % of the observers).

## VALIDATION AND UNCERTAINTY ESTIMATE

During the operational handling of phenological data each year a gross error check and an additional spatial quality control has been performed. Each year 1 - 2 % of the data are flagged to be wrong. Causes could be confusion of months and phases.

## UNCERTAINTIES

Factors for uncertainties include:  
 (1) change of observer (2) change of plants.

## CONSIDERATIONS FOR APPLICATIONS

Remarks from the observer about the report (such as K.n.A.d.Ph. = abnormal occurrence of phase) see [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/annual\\_reporters/fruit/historical/PH\\_Jahresmelder\\_Obst\\_Notiz.txt](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/fruit/historical/PH_Jahresmelder_Obst_Notiz.txt).  
 Fruit variety see [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/annual\\_reporters/fruit/historical/PH\\_Jahresmelder\\_Obst\\_Spezifizierung.txt](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/fruit/historical/PH_Jahresmelder_Obst_Spezifizierung.txt) and [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/annual\\_reporters/fruit/historical/PH\\_Jahresmelder\\_Obst\\_Spezifizierung\\_Notizen.txt](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/fruit/historical/PH_Jahresmelder_Obst_Spezifizierung_Notizen.txt). BBCH code see [phase definition; [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/annual\\_reporters/fruit/historical/PH\\_Beschreibung\\_Phasendefinition\\_Jahresmelder\\_Obst.txt](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/annual_reporters/fruit/historical/PH_Beschreibung_Phasendefinition_Jahresmelder_Obst.txt)].

## ADDITIONAL INFORMATION

English and Latin names of plants are listed in [PH\_Beschreibung\_Pflanze.txt;https://opendata.dwd.de/climate\_environment/CDC/help/PH\_Beschreibung\_Pflanze.txt]. For the English name of the phase see [PH\_Beschreibung\_Phase.txt;https://opendata.dwd.de/climate\_environment/CDC/help/PH\_Beschreibung\_Phase.txt]. According to experience, at some sites a few plant species are not, not continually or only partly observed. From 1991 (West Germany)/ 1992 (East Germany) a modified observation programme was introduced, see [PH\_Beschreibung\_Phaenologie\_Besonderheiten\_Zeitreihen.txt ;https://opendata.dwd.de/climate\_environment/CDC/help/PH\_Beschreibung\_Phaenologie\_Besonderheiten\_Zeitreihen.txt]. When using phenological data, it is advisable to use several stations characteristically of a natural area or natural area group. In this way, the data have less gaps and the specifics of a single station are less prominently influencing the results. The classification of natural areas and natural area groups used by Deutscher Wetterdienst (DWD) for phenological data is based on the map *Naturräumliche Gliederung und Waldverbreitung* (Meynen und Schmithüsen, 1953-1962), see also [Handbuch der naturräumlichen Gliederung Deutschlands;https://de.wikipedia.org/wiki/Handbuch\_der\_natur%C3%A4umlichen\_Gliederung\_Deutschlands]. Observation criteria for current pheno phases are defined in the [instructions for observers; http://www.dwd.de/DE/klimaumwelt/klimaueberwachung/phaenologie/daten\_deutschland/beobachtersuche/beobachteranleitung.html].

## LITERATURE

Bruns, E., van Vliet, A.J.H.: Standardisation of phenological monitoring in Europe. Wageningen University, Deutscher Wetterdienst, 2003.

DWD, Anleitung für die phänologischen Beobachter des Deutschen Wetterdienstes, Vorschriften und Betriebsunterlagen Nr. 17, Deutscher Wetterdienst Offenbach 1991, überarbeitet 2021.

Emil Meynen, Josef Schmithüsen (Herausgeber): *Handbuch der naturräumlichen Gliederung Deutschlands*. Bundesanstalt für Landeskunde, Remagen/Bad Godesberg, 1953–1962.

Kaspar, F., K. Zimmermann, and C. Polte-Rudolf: An overview of the phenological observation network and the phenological database of Germany's national meteorological service (Deutscher Wetterdienst). *Adv. Sci. Res.*, 11, 93-99, doi:10.5194/asr-11-93-2014, 2014.

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## REVISION HISTORY

This document is maintained by Deutscher Wetterdienst, CDC - Vertrieb Klima und Umwelt, last edited at 2023-09-15.