



## DATASET DESCRIPTION

### *Phenological observations of crops from sowing to harvest (immediate reporters, historical)*

**Version:** v009

**Publication date:**

**Cite data set as:** Phenological observations of crops from sowing to harvest (immediate reporters, historical), Version v009

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

**Dataset-URL:** [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/immediate\\_reporters/crops/historical](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/immediate_reporters/crops/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>	maize (not specified further), meadows, winter oilseed rape, beet, winter barley, spring barley, winter rye, winter wheat, potato, oat
<b>Temporal coverage</b>	1979-01-01 -- 2021-12-31
<b>Spatial coverage</b>	Germany
<b>Projection</b>	WGS 84 (EPSG:4326)
<b>Format description</b>	Each file PH_Sofortmelder* contains the observation of a certain species (e.g., oat), with fixed object_id (e.g., 208). 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 at: <a href="https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Stationen_Sofortmelder.txt">https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Stationen_Sofortmelder.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 = 2 : controlled on individual criteria;  
 QN = 7 : second control done, before correction;

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

QB = 0 : not checked/not flagged;  
 QB = 1 : had no objections;  
 QB = 5 : doubtful;  
 QB = 10 : meadows continuous green, a new greening could not be observed.

## 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 first detected resp. the latest occurrence of determined growth stages independent of plant specimen, site or field. The observation were reported immediatly online or by phone and archived in the climate data bank of DWD.

## VALIDATION AND UNCERTAINTY ESTIMATE

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

## UNCERTAINTIES

Factor for uncertainty is the change of the observer.

## CONSIDERATIONS FOR APPLICATIONS

BBCH code see [phase definition; [https://opendata.dwd.de/climate\\_environment/CDC/observations\\_germany/phenology/immediate\\_reporters/crops/historical/PH\\_Beschreibung\\_Phasedefinition\\_Sofortmelder\\_Landwirtschaft\\_Kulturpflanze.txt](https://opendata.dwd.de/climate_environment/CDC/observations_germany/phenology/immediate_reporters/crops/historical/PH_Beschreibung_Phasedefinition_Sofortmelder_Landwirtschaft_Kulturpflanze.txt)].  
 Beet (OBJEKT\_ID = 25): Presently it is not possible to show the quality byte (EINTRITTSDATUM\_QB), quality byte 0 = not checked applies for all data before 2007,  
 quality byte 1 = correct applies for all data from 2007 onwards.

## 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](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](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\_Zeitreehen.txt ; [https://opendata.dwd.de/climate\\_environment/CDC/help/PH\\_Beschreibung\\_Phaenologie\\_Besonderheiten\\_Zeitreehen.txt](https://opendata.dwd.de/climate_environment/CDC/help/PH_Beschreibung_Phaenologie_Besonderheiten_Zeitreehen.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](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](http://www.dwd.de/DE/klimaumwelt/klimaueberwachung/phaenologie/daten_deutschland/beobachtersuche/beobachteranleitung.html)].

## LITERATURE

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- 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.