

## DATA SET DESCRIPTION

### *Phenological observations of farming (annual reporters, historical)*

#### Version v006

**Cite data set as:** DWD Climate Data Center (CDC): Phenological observations of farming (annual reporters, historical), Version v006, 2019.

#### INTENT OF THE DATASET

This describes the freely available data of the DWD Climate Data Center (CDC). The phenological data are quality controlled, flagged with a quality byte and partly corrected.

#### POINT OF CONTACT

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#### DATA DESCRIPTION

<b>Spatial coverage</b>	Germany
<b>Temporal coverage</b>	1951-01-01 until 1991-12-31
<b>Temporal resolution</b>	annual
<b>Format(s)</b>	Ascii. Each file PH_Jahresmelder* contains the observation of a certain activity (e.g., farming), with fixed object_id (e.g., 501). 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> .
<b>Units</b>	farming, cattle on the pastures. Qualitaetsniveau      see      Quality_flags Stations_id            see <a href="#">stations annual reporters</a> Referenzjahr            year corresponding to phase Objekt_id                see <a href="#">phase definition farming</a> Phase_id                see <a href="#">phase definition cattle</a> Eintrittsdatum          date of observation <a href="#">phase definition farming</a> Eintrittsdatum_QB        see <a href="#">phase definition cattle</a> Jultag                    date of observation      yyyyymmdd Quality_flags day of the year
<b>Uncertainties</b>	Factors for uncertainties include: (1) change of observer (2) change of objekt
<b>Quality information</b>	The Qualitaetsniveau describes the data control. The individual dates are flagged with a quality byte (Eintrittsdatum_QB).

Qualitätsniveau:	1	only formal control
	7	systematically controled and flagged but not corrected
	10	quality control and routine corrections finished (individual corrections later still possible)
Eintrittsdatum_QB	0	unchecked
	1	correct
	2	corrected
	3	ratified
	5	uncertain
	7	invalid date, e.g. 31. April, corrected automatically to 30. April
	8	incorrect
10	meadows continuous green, anew beginning of turning green not detectable	

## 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.

## 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.

## ADDITIONAL INFORMATION

English and Latin names of plants are listed in [PH\\_Beschreibung\\_Pflanze.txt](#). For the English name of the phase see [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\\_Besonderheiten\\_Zeitreihen\\_Jahresmelder.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](#). Observation criteria for current pheno phases are defined in the [instructions for observers](#).

## REFERENCES

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

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.

DWD, Anleitung für die phänologischen Beobachter des Deutschen Wetterdienstes, Vorschriften und Betriebsunterlagen Nr. 17, Deutscher Wetterdienst Offenbach 1991, überarbeitet 2014.

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## **REVISION HISTORY**

The data are provided in approximately annual intervals as versioned data sets to take into account the historical data rescued in the meantime and with improved flagging of known data quality issues.

This document is maintained by DWD National Climate Data Center(NKDZ), last edited on 2019-04-25.