



German pollen calendar 4.0: update of the regional pollen calendars 4.0 with measurement data for the period 2011–2016

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To the editors

We recently reported in this journal [1] on the newly revised pollen calendar 4.0. The calendar presents the anticipated pollination periods—which show no particular regional features—for all of Germany.

However, since climatic differences in the four major regions of Germany (north, central and east, west, and south) also give rise to differences in pollination incidences, regional pollen calendars 4.0 (Figs. 1, 2, 3 and 4) are more suited to providing data on the upcoming pollen seasons in these regions. Therefore, in order to provide better information, the pollen calendars for the above-mentioned regions have been compiled in the same way as the pollen calendar for all of Germany [1].

A mutual comparison of the four regional pollen calendars revealed, for instance, the following differences:

- The main flowering period (MFP) of all tree pollen types considered (with the exception of beech) begins in the west. The difference to the region with the latest start—primarily in the north—is between 5 and 10 days on average for the 6-year period 2011–2016, and for hazel up to 23 days.

- The grass MFP starts first in the south of Germany and last in the north, with a 9-day difference. On average, mugwort pollen is found up to 14 days earlier in the south compared to the central and eastern region. The reverse applies to ragweed, whose MFP begins in the central and eastern region, with an up to 8-day difference to the south and the west.
- The MFP of the majority of tree pollen types (except poplar, beech, and willow) ends first in western Germany, 6–7 days ahead of northern regions. Only the MFP of alder ends later in the south compared to the north. The late flowering of alder actually lasts 47–66 days longer compared to other regions.
- The grass MFP ends on average 6 days earlier in the west compared to the north and south. Mugwort pollen occurs for the longest period in the west, with an 8-day difference to the north. The ragweed MFP ends first in the central and eastern region and last in the north 7 days later.

The differences identified in pollen counts for the individual pollen types represent average values over several years for a varying number of regional measuring stations. Some years, pollination in the mild, oceanic climate of the regions in the western German

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Fig. 1 Pollen calendar for northern Germany according to pollen data for the period 2011–2016. Regional demarcation is indicated in dark yellow on the map of Germany above the calendar

Regional pollen calendar for northern Germany

(based on 2011–2016 pollen data)



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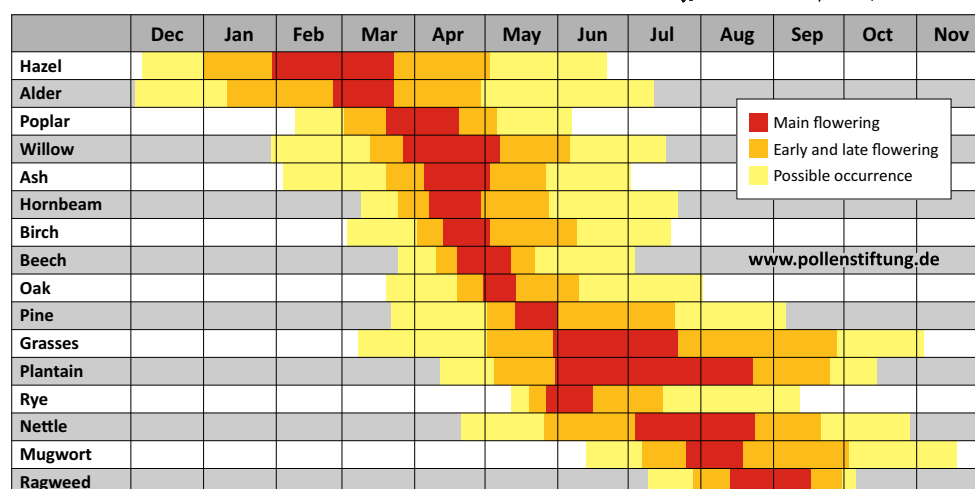


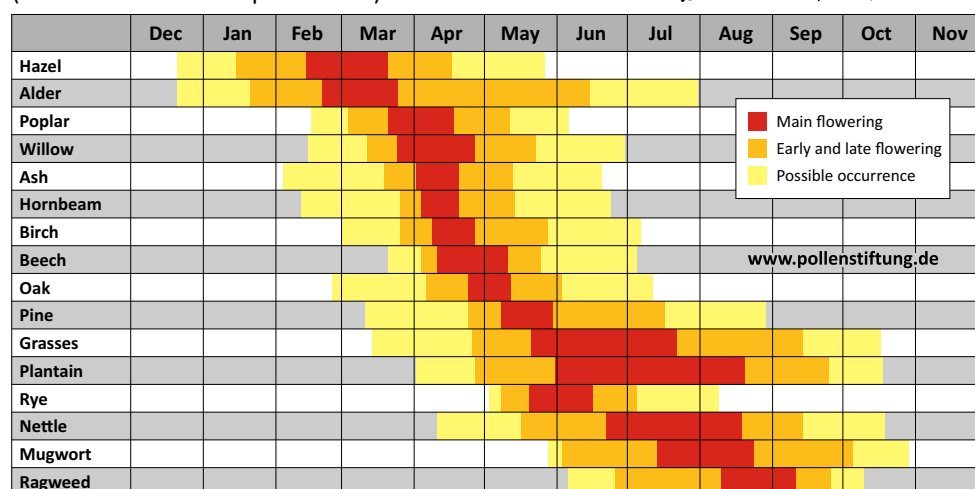
Fig. 2 Pollen calendar for southern Germany according to pollen data for the period 2011–2016. Regional demarcation is indicated in dark yellow on the map of Germany above the calendar

Regional pollen calendar for southern Germany

(based on 2011–2016 pollen data)



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lowlands can start up to two weeks earlier than in the regions with a stronger subcontinental character in the east and south-east with cold winters, particularly for tree pollen in early spring.

The regional pollen calendars 4.0, as well as other details and explanations, can be found following publication on the website of the German Pollen Information Service Foundation (*Polleninformationsdienst*, PID; www.pollenstiftung.de). Their use is subject to licensing.

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Fig. 3 Pollen calendar for central and eastern Germany according to pollen data for the period 2011–2016. Regional demarcation is indicated in dark yellow on the map of Germany above the calendar

Regional pollen calendar for central and east Germany (based on 2011–2016 pollen data)



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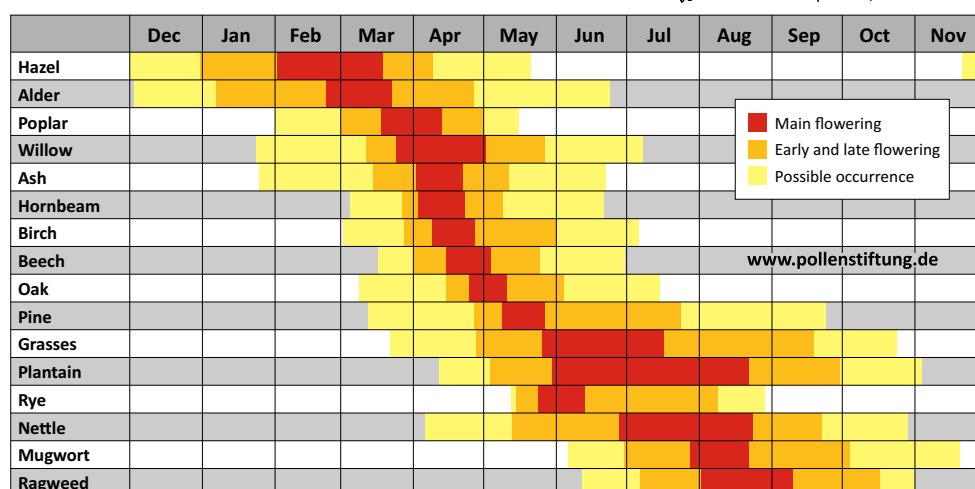
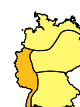
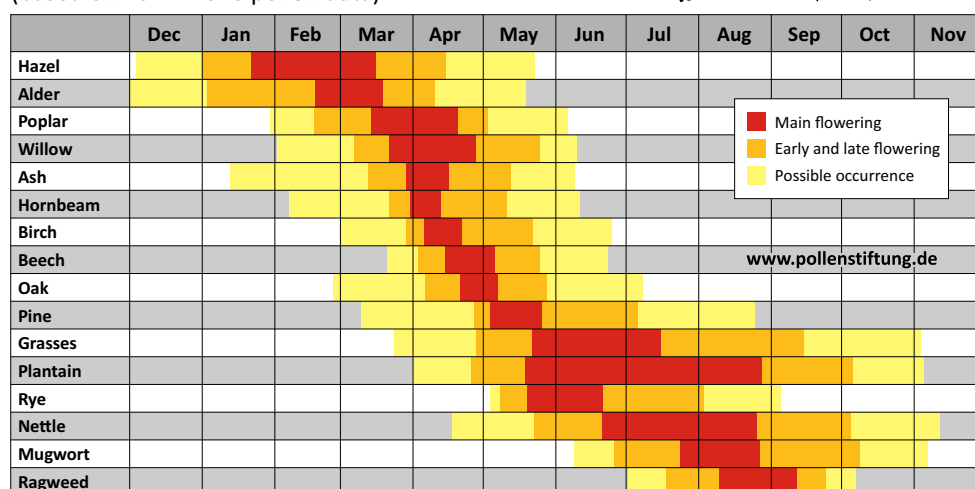


Fig. 4 Pollen calendar for western Germany according to pollen data for the period 2011–2016. Regional demarcation is indicated in dark yellow on the map of Germany above the calendar

Regional pollen calendar for west Germany (based on 2011–2016 pollen data)



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Conflict of interest M. Werchan, B. Werchan and K.-C. Bergmann declare that they have no competing interests.

References

1. Werchan M, Werchan B, Bergmann KC. German pollen calendar 4.0 - update based on 2011–2016 pollen data. *AllergoJ Int*. 2018;27:69–71.