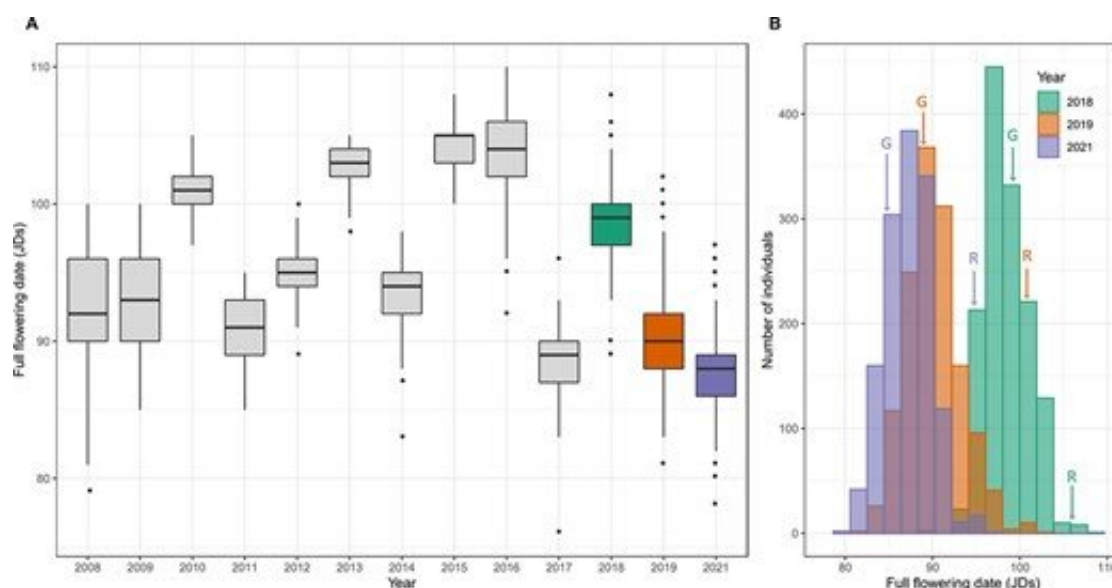


Scientists provide new insights into flowering dates in *Prunus* species

August 10 2022



Distribution of flowering date in Population #1 (from 2008 to 2017) and Population #2 (in 2018, 2019 and 2021). A) box plot of full flowering distribution scored in Julian days (JDs) across ten years in Population #1 (in grey) and three years in Population #2 (2018 in green, 2019 in orange and 2021 in purple). B) distribution of full flowering scored in JDs across three years in Population #2 (2018 in green, 2019 in orange and 2021 in purple). Data for parental cultivars “Regina” (R) and “Garnet” (G) in 2018, 2019 and 2021 is indicated by arrows in B. Credit: Camille Branchereau et al, *Horticulture Research* (2022). DOI: 10.1093/hr/uhac042

Recently, scientists from the French National Institute for Agriculture provided new insights into the control of flowering dates in *Prunus*

species, paving the way for development of molecular breeding strategies.

A quantitative trait locus (QTL) analysis on linkage group 4 (LG4) was highly stable across multiple years in the studied plant material, which had a relatively high chilling requirement and late bloom time. This region, as well as a QTL on LG1 associated with low chilling cultivars, is of significant interest for sweet cherry breeding programs aimed at creating new cultivars that are well adapted to their growing areas.

These results constitute the first step toward the development of markers within the LG4 QTL that can be used in marker-assisted selection for FD in sweet cherry. Researchers reduced the 380-kb region obtained with their new QTL analyses using a large population to a 68-kb region that contained only twelve candidate genes. The most likely candidate genes, with interesting expression patterns, were related to splicing (SR45a) and auxin response (SAUR71).

Further analyses based on transformation experiments in model species could be performed to validate these [candidate genes](#) and may give new insights into the control of FD in *Prunus* species. The scientists' study also provides useful methodological information by using the same cross in two different experimental designs to compare QTL analyses.

"This work should contribute to increase the efficiency of breeding programs for sweet cherry and other *Prunus* species to create new [cultivars](#) well adapted to the future climatic conditions," said the authors of the study published in *Horticulture Research*.

More information: Camille Branchereau et al, New insights into flowering date in *Prunus*: fine mapping of a major QTL in sweet cherry, *Horticulture Research* (2022). [DOI: 10.1093/hr/uhac042](https://doi.org/10.1093/hr/uhac042)

Provided by Nanjing Agricultural University The Academy of Science

Citation: Scientists provide new insights into flowering dates in Prunus species (2022, August 10)
retrieved 25 April 2024 from

<https://phys.org/news/2022-08-scientists-insights-dates-prunus-species.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--