RosBREED

DISEASE RESISTANCE × HORTICULTURAL QUALITY → SUPERIOR CULTIVARS

Jewels in the Genome

Cherry Maturity Date

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Maturity date differences among fresh market sweet cherry cultivars allow growers to choose ones that capitalize on high prices at the start or end of the season, as well as spread their need for harvest labor. A range of maturity dates also benefits consumers seeking a continuous summer supply of fruit. Sweet cherry breeders typically target specific maturity date classes in their program.

Having genetic knowledge of what crosses will yield a higher proportion of seedlings predicted to be in target maturity date classes would help breeders be more efficient. In peach, an important locus was identified on chromosome 4 (Dirlewanger et al., 2012; *http://bit.ly/1xnSvqp*). In sweet cherry, a maturity date locus was also identified in the same genomic position.

This locus is heterozygous in Lapins and was identified in a population of Regina × Lapins, where it explained ~20% of phenotypic variation. Alleles for this locus uncovered in other cultivars also contribute to maturity date variation: very early ripening of Cristobalina and Early Burlat, and late ripening of Sweetheart (P. Sandefur and C. Peace, pers. comm.).

With genetic knowledge of which seedlings will ripen at specific maturity timings, breeders can plan crosses to maximize the probability of obtaining selections in a target maturity class and redirect resources to other critically important consumer-related traits. Therefore, because knowledge of this genetic region will lead to more efficient breeding of sweet cherry cultivars, it is chosen as one of RosBREED's "Jewels in the Genome."

Reference

Dirlewanger E, Quero-Garcia J, Le Dantec L, Lambert P, Ruiz D, Dondini L, Illa E, Quilot-Turion B. 2012. *Comparison of the genetic determinism of two key phenological traits, flowering and maturity dates in three Prunus species: peach, apricot and sweet cherry.* Heredity 109: 280-292.

RosBREED Cherry Breeders

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RosBREED is a Coordinated Agriculture Project composed of a multi-state, multi-institution, and multi-disciplinary team of scientists dedicated to the accelerated genetic improvement of U.S. rosaceous crops using diagnostic DNA tools. This project is funded through the USDA-NIFA Specialty Crop Research Initiative by a combination of federal and matching funds.

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