

Fruit Development in Blackberry Types and Cultivars – Impact of Days and Temperature from Bloom to Stages of Ripening

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Abstract

The number of growing degree days (GDD) may be correlated with fruiting season but this has not been well documented in blackberry (*Rubus* L. subgenus *Rubus*, Watson). Twelve trailing ('Black Diamond', 'Black Pearl', 'Boysen', 'Everthornless', 'Kotata', 'Logan', 'Marion', 'Metolius', 'Nightfall', 'Obsidian', 'Silvan', 'Siskiyou'), two erect ('Navaho', 'Ouachita'), and two semierect ('Chester Thornless', 'Triple Crown') cultivars were studied. Year 1 was warmer than year 2, with higher overall GDD starting in June. At early-, mid-, and late-bloom, 10 flowers of each cultivar were selected randomly from an inflorescence, tagged and the stage of development recorded twice per week (bloom, first red, fully red, first black, glossy black, and dull black). The number of days and GDD (using daily minimum and maximum temperatures, base 10 °C, max. 30 °C, "standard model", from an on-site weather station) from bloom to ripening stage and GDD from 1 Jan. to bloom were recorded. Year, cultivar, flowering season, and their interactions were significant for GDD from 1 Jan. to bloom for all blackberry types, indicating the standard model could not predict bloom date. The GDD formula was modified to base 5 °C and max. 25 °C (trailing) or 35 °C (erect and semierect) with little to no improvement in prediction of bloom to any stage of development. Year, cultivar, and flowering season (with interactions) also affected days from open flower to developmental stage [e.g. from bloom to glossy black: 42–62 days (trailing), 55–65 days (erect), and 58–67 days (semierect); and averaging 3–5 additional days to reach dull black]. Using the standard or modified GDD models, we were not able to consistently predict bloom date or time from bloom to fruit ripening stages.