Nitrogen application rate and harvest date affect red drupelet reversion and postharvest quality in ‘Ouachita’ blackberries

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Abstract

Red drupelet reversion (RDR) is a postharvest physiological disorder in blackberries that causes fruit that is black at harvest to subsequently turn red. This trial aimed to investigate the effects of nitrogen (N) fertiliser application rate on the expression of RDR and postharvest fruit quality.

Nitrogen was applied weekly during the growing period via fertigation at a low, medium, and high rates (53, 106, and 212 kg N ha^{-1} respectively) to ‘Ouachita’ blackberries in 2016 and 2017. Yield, RDR, and postharvest quality were assessed. Harvest date, N application rate, and fruit mass were significant factors in the postharvest expression of RDR. In both years, fruit from the high N treatment exhibited significantly increased incidence and severity of RDR relative to the other two N application rates. Fruit temperatures during harvest of more than 23 °C were associated with higher incidence and severity of RDR in 2017, and smaller fruit were more likely to have no RDR in both years. The high N treatment produced more fruit than the low N treatment in 2016, and more and heavier fruit than both other treatments in 2017.