

Postharvest Ethylene Treatment on Blueberry Fruit Quality Attributes During Storage

Savithri Nambeesan¹ and Angelos Deltsidis².

¹UGA, Department of Horticulture, 1111 Miller Plant Sciences, Athens, GA 30602

²UGA, Department of Horticulture, 2360 Rainwater Road, Tifton, GA 31793

As acreage in blueberry production increases in the southeast, bottlenecks related to fruit quality and postharvest storage have become more critical. Ethylene is an important plant hormone that influences fruit ripening and quality after harvest. Climacteric fruits exposed to ethylene often exhibit hastened softening and deterioration of fruit quality. Southern highbush and rabbiteye blueberry exhibit atypical climacteric ripening physiology with an increase in respiration and ethylene like climacteric fruits. Thus, the exposure to ethylene could potentially have negative effects on the postharvest fruit quality of blueberries. Fruit quality in blueberries is important for consumer satisfaction. Our lab previously assessed blueberries purchased at various supermarkets and found many were soft in texture and poor in fruit quality. This indicates a potential for improvement in postharvest handling and maintenance of fruit quality after harvest. Two rabbiteye cultivars ('Brightwell' and 'Premier') were selected for this study. Three post-harvest treatments of 10 ppm ethylene, 100 ppm ethylene, and an untreated control were applied to the ripe fruit. Compression, puncture, and total soluble solids were used to assess fruit quality at 7, 14, and 21 days after storage. CO₂ evolution and visual assessment of the fruits for damage were also performed. The data generated by this study suggests that ethylene has minimal influence of the post-harvest quality of 'Brightwell' and 'Premier.' Greater and/or earlier fruit softening in the fruits treated with ethylene was not indicated by any of the measurements, nor was any apparent change of fruit quality caused by the treatments. The initial fruit quality in 'Premier' was poor and therefore treatment effects may be masked. Further and more complete examinations of other cultivars and fruit quality parameters are needed to truly know the postharvest effect of ethylene on blueberries.