

## **Ethephon and 1-aminocyclopropane-1-carboxylic acid (ACC) as ripening aids for blueberry**

### **Name, Mailing and Email Address of Principal Investigator(s):**

<u>Principal Investigator</u>	<u>Co- Principal Investigator</u>	<u>Co- Principal Investigator</u>
Savithri Nambeesan	Anish Malladi	Renée Allen
Asst. Research Scientist/ Faculty	Associate Professor	Area Blueberry Agent
University of Georgia/ CAES	University of Georgia	Extension-Bacon County
Department of Horticulture	Department of Horticulture	University of Georgia
1111 Miller Plant Sciences	1111 Miller Plant Sciences	203 S. Dixon St., Suite 3
Athens, GA 30602	Athens, GA 30602	Alma, GA 31510
Email: <a href="mailto:sunamb@uga.edu">sunamb@uga.edu</a>	Email: <a href="mailto:malladi@uga.edu">malladi@uga.edu</a>	Email: <a href="mailto:reneemh@uga.edu">reneemh@uga.edu</a>
Phone: 706-542-0777	Phone: 706-542-0783	Phone: 912-632-5601

Blueberry has emerged as a major crop in southeastern United States, especially Georgia over the last decade. The two main types of cultivated blueberry in GA are the southern highbush and rabbiteye blueberry. During ripening, individual fruit on the branch do not ripen uniformly. This extends the ripening window and therefore the harvest window over 2-3 weeks. Fruit for the fresh market are hand harvested, and this process is labor intensive. Thus, manual harvesting is one of the most expensive aspects of blueberry production. Development of a ripening aid could potentially synchronize ripening and reduce the number of harvests. This can greatly increase the profitability of the blueberry industry. In this proposed work, we determined the effect of two plant growth regulators, ethephon and 1-aminocyclopropane-1-carboxylic acid (ACC), on ripening and postharvest fruit quality. Both ethephon and ACC at 250 ppm can increase the rate of ripening in rabbiteye cultivars and possibly southern highbush cultivars. Within 5 days after treatment the percentage of ripe fruit increased with both ethephon and ACC treatments compared to the control. Within 10 days after treatment around 60-80% of the fruit were ripe after ethephon and ACC treatments, whereas in control the percentage of ripe fruit were lower by 20%. The effect of ethephon on ripening was more dramatic than ACC, and there were slight cultivars differences in response to PGRs. As such fruit quality attributes during postharvest storage was not dramatically different after treatment. Even though not statistically different, trends indicated slightly higher texture, lower fruit weight and total soluble solids, higher titratable acidity, especially after ethephon treatment. Overall postharvest fruit quality in terms of visual quality suggested less damaged fruit after treatments, although not significant. Thus, both ethephon and ACC have great potential to be developed as ripening aids for the GA blueberry industry.