Delayed Harvest and Cold Storage Performance of ‘Gloria’™ NJ351 Peaches

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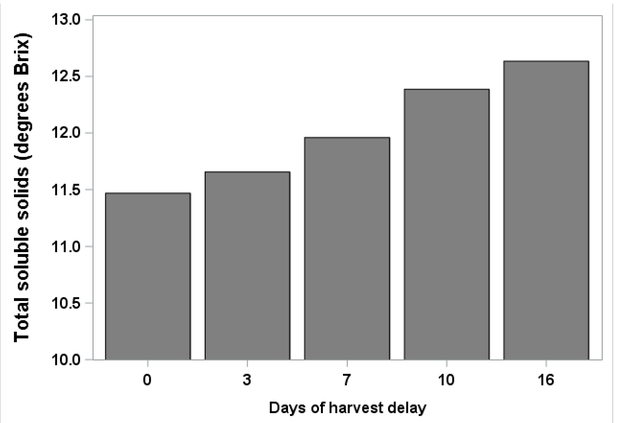
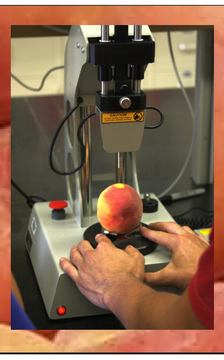
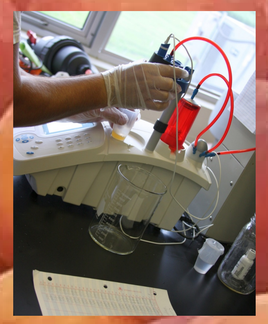
Abstract

The peach cultivar ‘Gloria’ has novel flesh texture and ripening characteristics in part due to the stony-hard gene in its lineage. Because ‘Gloria’ fruit remain very firm on the tree as they ripen and can become very large, growers are tempted to let the fruit remain on the tree after they have reached commercial maturity. In 2016 an experiment was conducted in two commercial orchards of mature bearing ‘Gloria’ trees in southern New Jersey. Commercially mature fruit (N=500) were identified and labeled on one day in each orchard. Labeled fruit were then randomly assigned to be harvested at either 0, 4, 8, 12, or 16 days after commercial maturity then placed in cold storage for 0, 7, 14, 21, or 28 days before evaluation. All fruit were hydro-cooled before storage. Statistical analysis revealed that fruit diameter and total soluble solids increased with increasing harvest delay, while total titratable acidity and ground color hue angle (changing from cool yellow to mid yellow) decreased with increased harvest delay. The significant interaction of harvest delay and storage time on flesh firmness was because fruit remained firm for 28 days of storage if harvested at commercial maturity or 4 days after commercial maturity, but longer delays in harvest resulted in softer fruit and significant loss in firmness during storage. There were no significant treatment effects on the occurrence of flesh defects (internal breakdown or flesh browning). The ability of ‘Gloria’ to ripen more fully on the tree while retaining firmness and potential storage life provides the opportunity for increased sales and enhanced customer appeal. ‘Gloria’ peaches can hang on the tree for 5 to 7 days after they reach commercial maturity but hanging longer than 7 days reduces their storage life significantly and is not recommended.

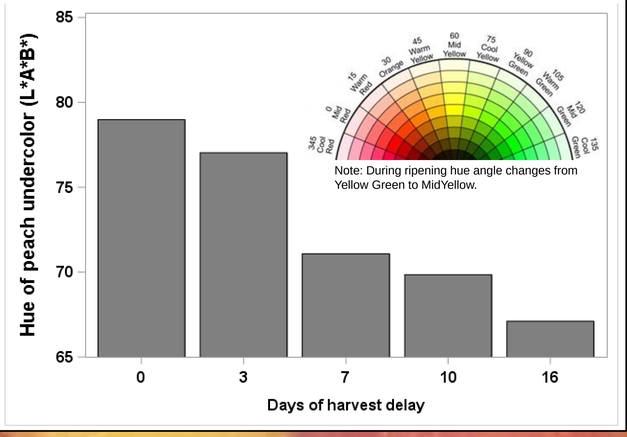
Fruit diameter and total soluble solids increased (*P*<0.001) with increased harvest delay.



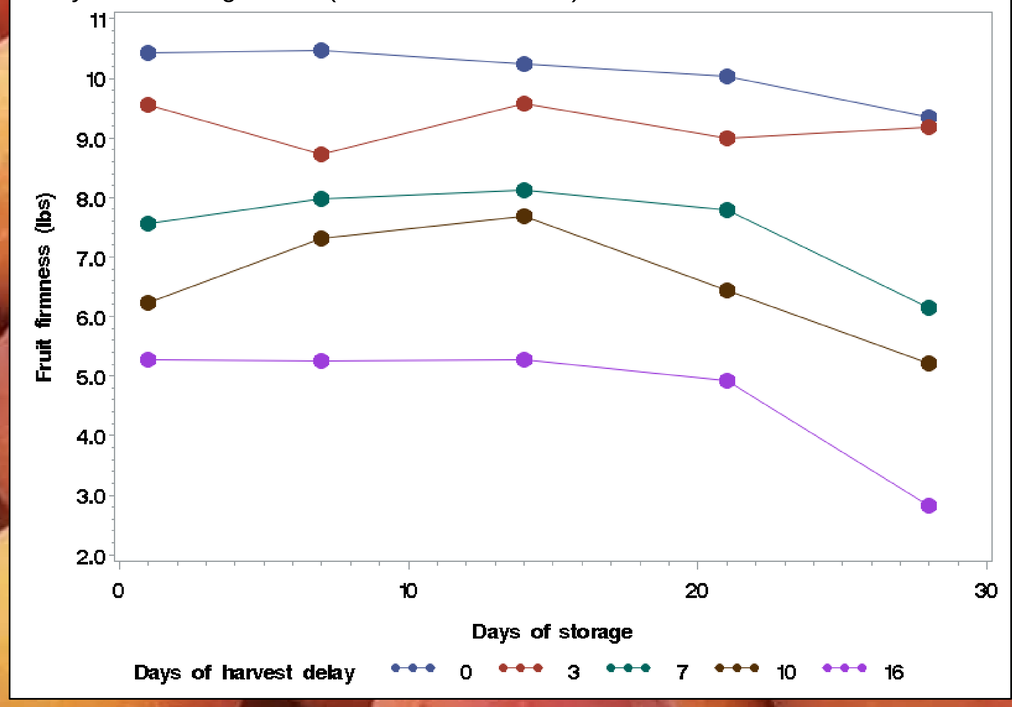




Fruit hue angle decreased (*P*<0.001) with increased harvest delay.



Fruit firmness decreased with time in storage and with increased harvest delay, but the rate of firmness loss during storage was greater when harvest was delayed for a longer time (interaction *P*<0.001).



Distribution of flesh defects from all treatments. There was no effect of harvest delay or storage time on fruit flesh ratings (0= no internal breakdown or browning, and 3= severe internal breakdown or browning).

Flesh rating	Percentage
0	96.9
1	2.3
2	0.5
3	0.4

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