An Update on Thinning Peaches with Gibberellic Acid

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Hand thinning of young peach fruit is an expensive part of peach production. Any technique that could reduce the labor of thinning would be financially beneficial to peach producers. In 2012, we reported on 2 years of work with gibberellic acid (GA) on peaches. GA was applied about 4 weeks before harvest. Work elsewhere suggested that GA applied in this pre-harvest period can reduce flower bud formation. Our results confirmed those with significant reductions in flower bud formation with increasing concentration of GA. Further, GA application increased flesh firmness in the year of application.

In 2013, our goal was to again test the effectiveness of GA application on fruit quality and firmness and to study the potential interacting effects of AVG (Retain®).

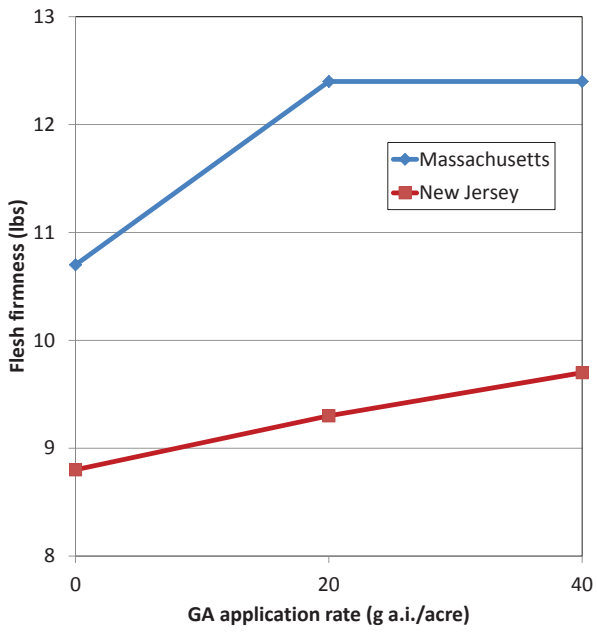

Figure 1. Effects of GA applied two weeks before harvest on flesh firmness of Jersey peach in Massachusetts and New Jersey.

Materials & Methods

In 2013, 78 and 48 trees were selected at the Rutgers Snyder Farm (Pittstown, NJ) and at the UMass Cold Spring Orchard (Belchertown, MA), respectively. Trees were divided randomly among three rates of GA in the form of ProGibb® (0, 20, and 40 g a.i./acre) in all combinations with two rates of AVG in the form of Retain (0 and 50 g a.i./acre). All treatments were applied about 2 weeks before harvest and included 6.4 oz. Sylwet® plus 6 oz. Drexel Defoamer®/100 gallons. Harvest samples were taken on August 15 and 22 in Massachusetts and on August 5, 9, and 14 in New Jersey. At harvest fruit were weighed, flesh firmness was measured with a penetrometer, and the soluble solids concentration of the juice was measured with a hand refractometer. The density of bloom was measured in 2014 by counting the number of flowers on 6 new 1-year-old shoots of similar vigor per tree (reported as the average number of flowers per cm of shoot length).

Results

AVG resulted in an increase in flesh firmness in both Massachusetts and New Jersey (0.5-1.0 lbs) but did not impact any other measurement and did not substantially affect the fruit or tree response to GA (data not shown). GA increased flesh firmness by about 1 lb in New Jersey and almost 2 lbs in Massachusetts (Figure 1). In Massachusetts, GA decreased soluble solids concentration, but it did not impact soluble solids in New Jersey (Figure 2). Flower bud formation was not affected in New Jersey, but in Massachusetts, the 20g rate of GA reduced 2014 bloom by 38%, and the 40g

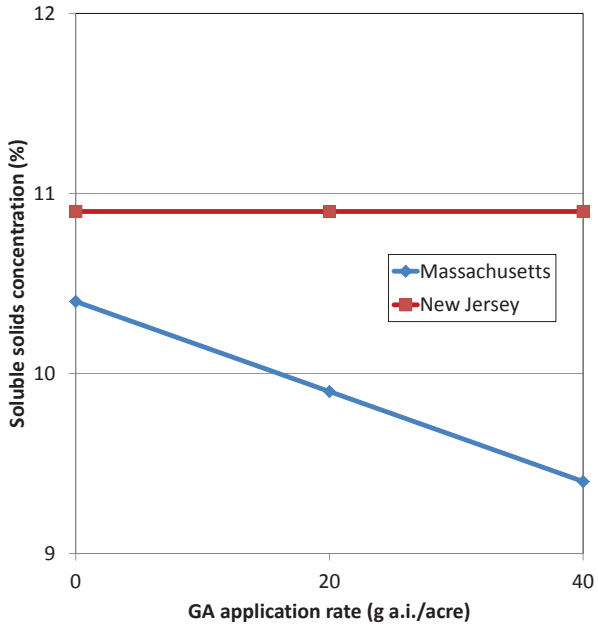

Figure 2. Effects of GA applied two weeks before harvest on soluble solids of Jersey peach in Massachusetts and New Jersey.

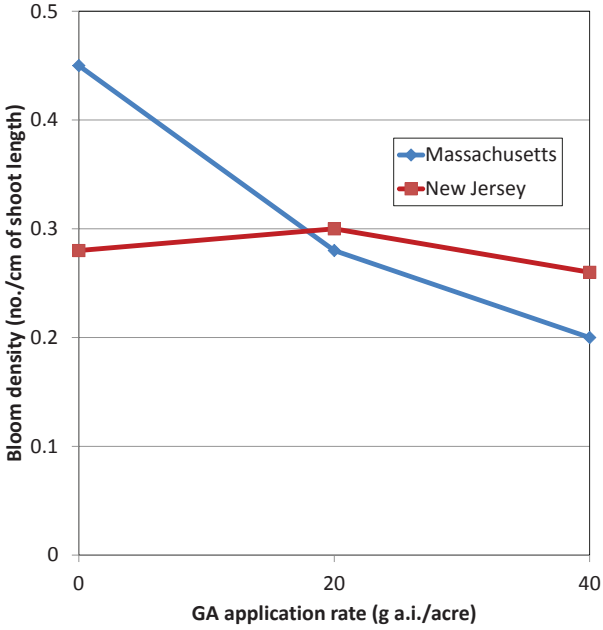

Figure 3. Effects of GA applied two weeks before harvest on bloom density of Jersey peach the following year in Massachusetts and New Jersey.

rate reduced it by 57% (Figure 3).

Conclusions

Increased firmness as a result of GA application has been a consistent result from our research, and it appears that AVG, likewise can increase firmness. For flower buds, the GA effect of reduced formation only was measurable in Massachusetts in 2014. This is somewhat inconsistent, but in the two previous studies, like this one, the flower density of the untreated trees was lower and the response to GA was less pronounced in New Jersey than Massachusetts. We believe that the higher vigor of the New Jersey trees may be affecting their responsiveness to GA applications.

In three years in Massachusetts and two out of three years in New Jersey, GA application 2-4 weeks before harvest significantly reduced flower bud formation and the resulting flower density. GA can therefore significantly impact the need for hand thinning.

We recommend that growers test GA on their farms with trees of different vigor and of different varieties. A rate between 20 and 32 (the maximum label rate) g a.i. per acre and timing of 2 weeks before harvest is a good starting point. We believe that GA, once calibrated for a farm, can be a valuable tool for a peach grower.