ETHYLENE AS AN ALTERNATIVE METHOD IN PEACH FRUIT THINNING

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ABSTRACT

Fruit thinning is one of the major management practices in a peach orchard. Hand-thinning is presently the only method to adjust the number of fruits and there is no reliable method to thin peaches chemically so far.

This study was conducted to determine whether ethylene can be used as a chemical thinning agent as well as a method to enhance fruit maturity in peach orchard. Experimental design was carried out in RCB design with six treatments including ethylene at three concentration (100, 200 and 400ppm), AminoethoxyVinylGlycine (AVG) at 500ppm, hand-thinned and un-thinned trees. Ethylene applications at 200 and 400ppm resulted in significant fruit thinning and an increase in fruit size and weight. There was a 10-16 days difference in Fruit maturity between 200-400ppm ethylene and un-thinned trees (indicated by decrease in fruit firmness and higher sugar concentration). Usually growers have to hand thin peach fruits 45 days after full bloom and by this time trees will loose some of their carbohydrate trough thinned fruit. Ethylene can be used even after bloom and as a result the remaining fruits have more chance to absorb these carbohydrates. AVG is an inhibitor of ethylene biosynthesis and its application at 500ppm resulted in retaining more fruits per trees. It shows that AVG can be used as an anti-abscission agent in varieties with high rate of fruit drop.

This study shows that ethylene can be used as an alternative method in peach fruit thinning. However, further research is necessary for its optimum concentration.

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