

Gala apples: Cold-induced ethylene impacted by harvest maturity, AVG treatment

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Gala is a major apple cultivar grown worldwide that is mostly planted as red sports (genetic mutation), such as Royal, Brookfield, Fulford, and Galaxy. The red sports tend to have similar maturation profiles, but they allow earlier harvests and strip picking, which is not recommended for the original Gala or lower-colored sports. Although Gala fruit are harvested early relative to typical long-term storage cultivars such as Red

Delicious, Granny Smith, and Fuji, they are often stored long-term under controlled atmosphere conditions.

A recent study, conducted by researchers at Cornell University, has provided significant insights into the effects of [harvest](#) maturity and preharvest treatments on the cold-induced ethylene production of Gala apples. The findings hold substantial implications for [apple](#) producers seeking to optimize fruit quality and extend storage life.

The [research](#) focused on the application of aminoethoxyvinylglycine (AVG), a known ethylene inhibitor, and its influence when combined with varying harvest maturities on the ethylene production in Gala apples during cold storage. Ethylene is a natural plant hormone responsible for the ripening and senescence of fruits, and its production can be a critical factor in determining the storage longevity and quality of apples.

The study observed that apples harvested at different maturity stages exhibited varied responses to cold-induced ethylene production. Apples harvested at earlier maturity stages showed lower ethylene production compared to those harvested at a later stage.

Application of AVG before harvest significantly reduced the rate of ethylene production during cold storage across all maturity stages. This reduction was more pronounced in apples harvested at earlier maturity stages.

The combined effect of early harvest maturity and preharvest AVG treatment resulted in the lowest levels of ethylene production, suggesting an interactive relationship between the two factors in controlling ethylene synthesis during [cold storage](#).

The findings of this study are particularly valuable for apple producers and storage facilities aiming to maintain the quality and extend the shelf

life of Gala apples. By adjusting harvest timings and incorporating AVG treatments, producers can better manage [ethylene](#) production, thereby reducing spoilage and maintaining the desirable qualities of the apples over extended periods.

More information: Wanlinghe Cai et al, Harvest Maturity and Preharvest Aminoethoxyvinylglycine Treatment Effects on Cold-induced Ethylene Production of 'Gala' Apples, *HortScience* (2023). [DOI: 10.21273/HORTSCI17074-23](#)

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