

**Title** Kinetic modeling of firmness breakdown in 'Braeburn' apples stored under different controlled atmosphere conditions

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### **Abstract**

A model to describe the loss of firmness in apples stored under different temperatures and controlled atmosphere (CA) conditions was developed. Pectin degradation, the synthesis of pectin degrading enzymes and ethylene production were considered to be the main reactions involved. Appropriate kinetic equations for these reactions were proposed. To estimate the parameters of the model, firmness and ethylene emission data were collected from 'Braeburn' apples harvested at three different stages of maturity and stored at 1 °C under different CA conditions followed by shelf life. The model could explain up to 83.64% of the total variance of the measured data.