

Title Effect of the temperature and CO<sub>2</sub> partial pressure on the 'Gala' apple stored under controlled atmosphere, with ultra low oxygen partial pressure.

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#### **Abstract**

The effect of temperature and CO<sub>2</sub> concentration on the quality of apple cv. Gala, stored in various ultralow oxygen conditions (1 kPa O<sub>2</sub>), was evaluated. The treatments include 2 and 3 kPa CO<sub>2</sub> in -0.5 deg C, and 2, 3 and 4 kPa CO<sub>2</sub> in 0.5 deg C. Evaluations on apple quality were conducted at chamber-opening and after 7 days shelf life at 25 deg C. At chamber-opening, no significant differences in apple firmness were observed as a result of the different treatments. Fruits stored under 2 and 3 kPa CO<sub>2</sub> at -0.5 deg C and 4 kPa CO<sub>2</sub> at 0.5 deg C had better firmness. Titratable acidity was higher in fruits stored under 2 and 4 kPa CO<sub>2</sub> at 0.5 deg C and -0.5 deg C at the chamber-opening, but fruits stored under 2 kPa CO<sub>2</sub> at -0.5 deg C and under 3 kPa CO<sub>2</sub> at 0.5 deg C had higher acidity after 7 days. At chamber-opening, peel colour was greener in those fruits stored under 3 and 4 kPa CO<sub>2</sub> at -0.5 deg C. Internal breakdown incidence increased in low temperature and under high CO<sub>2</sub> concentrations. Incidence of mealy fruits was greater under 3 kPa CO<sub>2</sub> at both temperatures at chamber-opening, whereas incidence was greater at 0.5 deg C and under 4 kPa CO<sub>2</sub> at -0.5 deg C after 7 days of storage.