

# A Comparative Study of “Golden Delicious” and “Fuji” Apples Produced by Organic and Conventional Systems in the Northeast of Spain

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## Abstract

*The objective of our research was to compare the postharvest properties of organically and conventionally grown apples (*Malus domestica* L., cv. “Golden Delicious” and “Fuji”) from the region of Lleida (northeastern Spain). Fruit were obtained from conventional and organic experimental orchards, except for the organic “Golden Delicious” apples, which were obtained from a commercial orchard. All orchards had similar climate and soil characteristics. “Golden Delicious” and “Fuji” apples were harvested at the commercial harvest date in 2006 and stored in air for 4 or 5 months, respectively. Ethylene production, firmness, total titrable acidity (TA), and soluble solids content (SSC) were analyzed at harvesttime and after cold storage (fresh and after 7 days of shelf life at 20°C). After storage and shelf life, physiological disorders were evaluated and a nontrained consumers panel tasted the apples to establish their sensory attributes. Although harvested on the same day, nonorganic fruit were generally more mature compared with organic fruit, as indicated by a higher ethylene production. Additionally, organic “Golden Delicious” apples showed higher malic acid levels, whereas no difference was found in SSC compared with the conventional samples. There was no difference in the TA between organic and nonorganic “Fuji” apples, but firmness and SSC were significantly higher in the nonorganic fruit. For both cultivars, organic fruit developed less physiological disorders during cold storage: fewer “Golden Delicious” apples developed bitter-pit and “Fuji” apples presented less lenticel breakdown. In accordance to the instrumental results, sensory evaluation indicated that organic “Golden Delicious” apples were more sour and organic “Fuji” apples more sweet than those produced by conventional systems. However, hedonic scale values showed no clear differences in the general sensory qualification. Collectively, these results show that the production method (organic versus conventional) and the cultivar may have a significant influence on the postharvest properties of apples.*

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