

Title Growing conditions affect postharvest quality of greenhouse cucumbers
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Abstract

In Australia, seedless cucumbers are grown in greenhouses using a wide range of technologies. Small farmers in peri-urban areas predominantly use simple plastic tunnel houses, whereas growers in rural districts use larger, sophisticated modern glasshouses. Planting density can also vary widely. The resulting differences in climate control and plant health can have large effects on yield. However, the effects on postharvest quality were unknown. We grew cucumbers at three different planting densities in four experimental greenhouses with; (1) no ventilation or heating, (2) limited ventilation only, (3) heating and some ventilation and (4) full climate control. Cucumbers were assessed in terms of chlorophyll content, chilling injury, rots, colour, firmness and shelf life following storage at 2 - 10 degrees C for up to 20 days. Planting density did not affect postharvest quality. However, fruit grown in the different greenhouses varied significantly. Cucumbers grown in house (4) were consistently firmer, less prone to postharvest yellowing and had fewer rots compared to those grown under less controlled conditions. Cucumbers from house (1) yellowed and softened soonest after harvest. It had been suggested that cucumbers exposed to cold night temperatures would be less susceptible to chilling injury, but such an effect was not observed in this trial. The results are discussed in terms of potential improvements in returns to growers able to invest in new technology.