

Prolonged modified atmosphere storage of Hass avocados

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Abstract

An attempt was made to learn more about modified atmosphere (MA) storage of Hass avocados and facilitate its commercial application. Experiments were conducted to determine the ideal thickness of the polyethylene (PE) bags used for MA, the right storage temperature, the appropriate ratio between the amount of fruit and the size of the bags and to obtain an indication of the longest possible storage period free of chilling injury. The best result was obtained with 30µm PE bags (70x40cm) containing 15 fruits (3.1 kg). The oxygen level in these bags was reduced to approximately 4% and the accumulated carbon dioxide reached around 5% at storage temperatures of 5° C and 7° C. The lowest ethylene concentration was detected at 5° C; at 7° C the level was double that at 5° C. The different thicknesses of the PE bags tested did not have a significant effect on the fruit chilling injuries which developed during storage. Fruits stored at 5° C remained firmer than those stored at 7° C, and the fruit keeping quality in completely sealed bags was superior to that in perforated ones. Storage in PE bags reduced weight loss and slowed down the development of black pigmentation in the peel. However, the fruit peel reached its characteristic dark color at full softening. It appears that it is possible to obtain good quality fruit after up to 9 weeks of MA storage at 5° C.