

Abstract

The occurrence of calcium-related disorders such as bitter pit is still a major problem in achieving optimal apple fruit quality after storage. Current methods of reducing such disorder incidence involve preharvest tree management , calcium sprays, and postharvest technologies, mostly aimed at increasing the calcium content of the fruit. Despite the success of some of these approaches, new fruit varieties still can have calcium-related quality problems. We have investigated the heritability of both bitter pit and fruit calcium content in apple fruit populations, and have started a programme involving a gene-based approach to providing selectable markers for high fruit calcium and low incidence of calcium-related disorders for use in developing new apple cultivars. Results from the heritability study, and mapping and microarray approaches based on Hort Research's apple EST database, will be described.