Title Fruit characteristics of 'York' apples during development and after storage.

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Abstract

Firmness, soluble solids concentration (SSC), starch index (SI), internal ethylene concentration (IE) and titratable acid concentration (TA) of apple cv. York Imperial fruits changed linearly with harvest date between 152 and 173 days after full bloom (DAFB). Firmness was positively correlated with TA, SSC was correlated with SI, and SI was negatively correlated with TA. After 150 days of refrigerated-air storage, there was no relationship between DAFB at harvest and firmness or superficial scald, but the malic acid concentration declined linearly and storage decay increased linearly with DAFB. Firmness had declined to a plateau and was not correlated with any variable at harvest. Malic acid concentration after controlled-atmosphere (CA; 2.5% O2, 1% CO2) storage was correlated with DAFB, firmness, SSC, and SI; scald was correlated with firmness and SI; and decay was correlated with DAFB, firmness, SSC and SI. During 150 days of CA storage, firmness and TA decreased as a linear function of DAFB. Percentage of fruits with scald and scald rating changed quadratically with DAFB, and decay increased linearly with DAFB. After 150 days of CA, firmness was correlated with DAFB, SI and IE at harvest; TA was correlated with DAFB, firmness, SSC, TA and SI; scald was correlated with firmness and SI; and decay was correlated with DAFB, SSC and scald index at harvest. During 250 days of CA storage, firmness, TA, scald and decay changed linearly with DAFB in only 1 or 2 years out of 3. Formulae were created to predict firmness after CA within 10-12 N and TA within 25%.