

Title Application of new techniques for scald control-scald forecasting
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Abstract

Superficial scald is a serious physiological disorder of apples and pears. Occurring during storage, it results in a brown discoloration, making the fruit unmarketable and limiting its storage potential. Currently, drenching with the antioxidant diphenylamine (DPA) provides good scald control. However, some markets do not accept fruits treated with this chemical and there are increasing concerns over residue limits and environmentally-safe disposal of used drench. The inability to predict scald occurrence results in fruits being unnecessarily treated. Models have been developed to predict scald. They incorporate measurements of fruit maturity, temperature in the orchard prior to harvest and the intended storage length. Scald prediction models are now available for several cultivars and districts in Australia. In several seasons of trials, no single model predicted scald incidence for a specific cultivar across more than one district. In cooler districts, accumulated preharvest hours is usually the most important predictor of scald susceptibility and an accumulation of more than 150 h below 10 deg C is usually required before significant scald resistance is encountered. In contrast, fruit maturity usually increases significantly before and during harvest in warmer climates so that starch score is likely to be a more important scald predictor in this case. Forecasting models can be useful for choosing the type of treatment needed. This should lead to a reduction in chemical usage and increased marketability.