

RESEARCH DIRECTIONS

Longer Lasting Summerfruit

Associate Professor Paul Holford and Adjunct Professor Barry McGlasson from the Centre for Plant and Food Science are exploring ways to improve storage and transport of summer fruits in low temperatures through funding from Horticulture Australia.

'The storage life of nectarines, plums and peaches is too short to allow export of these popular summer fruits to many far-flung markets,' says Associate Professor Holford. 'Cold storage is often a viable solution for other fruits, but the cool storage life of peaches, plums and nectarines is limited by a condition called low temperature breakdown (LTB), restricting storage to about 3 weeks. This is not long enough to export these fruits by sea and still allow time for transport to retailers before sale on shop shelves. A common treatment for improving storage, 1-methylcyclopropene (1-MCP), works for some varieties of plums but actually hastens low temperature breakdown in peaches and nectarines. This project will study the genetic differences between these closely-related fruits that allow plums to react well and peaches and nectarines to react adversely to 1-MCP treatment.'

This is a national and international collaboration with NSW Department of Primary Industries, Woolworths Ltd., Horticulture Australia Ltd., and researchers at the universities of Pisa and Padova in Italy. The team will look at the changes in gene expression that occur in these contrasting types of fruit when they are subjected to cold storage with and without treatment with 1-MCP. 'Gene chips' developed by our Italian collaborators will allow detection of changes in expression of over 4000 genes simultaneously, permitting the identification of genes



in the fruit that control the development of LTB.

The outcomes of this project will assist breeders to select varieties of summer fruits with improved cool storage ability and fruit quality. Improvements in storage life will assist access to distant export markets that require the fruit to undergo a cold treatment to kill insects. By opening up new markets currently only accessible by air freight to sea transport mechanisms, producers and retailers will be able to save considerable freight costs and pass these savings on to Australian summer fruit growers.

Project Title: Understanding fruit physiology to minimise low temperature disorders of summer fruit
Funding has been set at: \$43,126
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