



Postharvest Storage Information: Something New from CSIRO Publishing.

By Jenny Jobling

Maintaining the correct storage and transport conditions from the packing shed to the consumer is an important factor in minimising quality loss. Despite this, it is often overlooked. This is sometimes due to commercial constraints, but it can also be due to a lack of information. Finding and accessing new information is becoming increasingly harder as managers face increased commercial pressure in terms of available time or trained personnel. A lot of information is available, particularly via the internet, but time is often the limiting factor in terms of accessing that information. This article will discuss some of the issues relating to postharvest storage information and will also provide some references for finding information from some new sources.

Storage Recommendations - some limitations.

There is a large amount of information published about storage and transport of fresh fruit, vegetables and flowers (see reference list for details). There are authoritative compilations of data and many individual research publications. There are, unfortunately, a number of difficulties in using these resources:

- Often the information is scattered through a large number of publications, each of which may describe only selected crops. This means you may need to consult several sources before finding the information that suits your needs.
- Much of the information is contradictory. Research may have been done on different varieties in different countries and different parameters may have been measured to assess the quality of the product, these factors can all attribute to variability in product recommendations.
- Sometimes the names of the product are not clear. Names and identification of crops vary markedly between countries and between publications. One of the problems is that we use common names for products which are not very specific or accurate.
- Often the information is very general. This is not always helpful as varieties of a product can respond very differently to different conditions. So where possible, it is important to have varietal or cultivar specific information.

There are many excellent web sites which provide information on the handling and storage of fresh produce (see reference list for details). However, the points outlined above also apply to information accessed via the internet.

Sydney Postharvest Laboratory Information Sheet.

Optimal Fresh - a new Australian database of postharvest storage information.

CSIRO publishing is soon to release a new CD ROM database compiling storage information on a wide range of fresh fruit, vegetables, herbs and flowers. The software is called Optimal Fresh and it has evolved through the collaboration of Sydney Postharvest Laboratory, Food Science Australia and CSIRO publishing.

The heart of Optimal Fresh is a database that brings together an extensive range of information for a wide variety of crops. The database was begun in 1993 as a research tool. Since then the database has grown to contain information on more than 1,500 products, including fresh fruit, vegetables, herbs, nuts, mushrooms and ornamentals (flowers, foliage and planting material). The data base is intended to help people involved in all aspects of the fresh produce industry, including storage, transport, export and import, wholesalers, retailers and researchers.

The system has compiled information from over 240 referenced sources. The aim of the Optimal Fresh system is to help select the most relevant information from these references, for a particular purpose, and then present that information in the most useful way. The system can flag differences between cultivars, climates and level of maturity and indicate what action is required.

One major problem encountered when collating the information available was that the common names and even botanical names varied. A great deal of work has gone into attempting to clarify

the situation for all crops and cultivars in the database and all common names are referenced to botanical names and pictures where possible.

Some of the information compiled in Optimal Fresh include:

- botanical name, botanical family, class and order, as well as common name
- plant part and usage
- recommended storage temperature (minimum and maximum)
- expected storage life at recommended temperature and at room temperature
- recommended relative humidity
- ethylene production and sensitivity
- production of odours and sensitivity to odours from other crops
- compatibility with mixed loads
- benefit of controlled or modified atmospheres and recommended conditions
- recommended controlled or modified atmospheres
- heat of respiration
- seasonal availability for over a dozen countries

The database also includes information on the ventilation rates recommended for refrigerated containers and cool rooms, water loss during storage, the freezing point of each product and it also has common names in six major languages (Chinese, English, French, German, Japanese and Spanish).

It is anticipated that this program will find a wide number of uses. These range from giving definitive information for identifying crops to practical storage information for growers.

The information in the database is presented in a number of different formats depending on the needs of the user. A brief summary can be printed which includes the critical information

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and is ideal paperwork to accompany export shipments. It is also possible to print labels which can be stuck to the carton/pallet to highlight the key storage information for that crop. These labels will assist store managers and transport persons in the marketing and handling chain with critical information about the crop and this will help to ensure the quality of the product is assured.

The information can also be presented as a full summary which will provide more information which can be used for planning the best storage and transport scenario for a particular crop. There is also a detailed report which lists all the storage information and the references. This information will be a useful research tool as the variability between sources can be easily assessed and areas where more information is needed can also be determined.

The main advantages of this new database is that Optimal Fresh provides all available information for a particular crop or product, displays it and then generates an output in a form related to various types of use. This use can range from a full research reference list to transit labels for individual consignments.

Optimal Fresh will be published as a CD-ROM for use with Windows 95 or higher.

For more information about Optimal Fresh please contact CSIRO Publishing, PO Box 1139, Collingwood VIC 3066. Ph: (03) 9662 7666.

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Jenny Jobling is research manager at Sydney Postharvest Laboratory. Sydney Postharvest Laboratory provides independent, expert postharvest horticultural research and advice. The laboratory is located at Food Science Australia, North Ryde, NSW Australia.

Sydney Postharvest Laboratory
PO Box 52 North Ryde NSW 2113
Ph: 02 9490 8333, Fax: 02 9490 8499
Email: spl@postharvest.com.au



Figure 1: Correct storage before shipping and while in transit means quality out turns.

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