

# **Mango Information Delivery Initiative**

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QLD Department of Primary  
Industries & Fisheries

Project Number: MG05006

## **MG05006**

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# Final report

## MG05006 Mango Information Delivery Initiative



MRD.EXE



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# HAL MG05006 : Mango Information Delivery Initiative

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**Purpose:** The Mango Reference Database is a joint initiative of the Queensland Department of Primary Industries and Fisheries, Horticulture Australia Limited and the Australian Mango Industry, with contributions from the Northern Territory Department of Primary Industry, Fisheries and Mines and the Department of Agriculture and Food, Western Australia.

The Mango Reference Database 2007 addresses the issue of technology transfer for the mango industry, particularly for key work supported by the Australian Mango Industry Association and Horticulture Australia Ltd.

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**Mango Reference Database (MRD) CD-ROM enclosed**

## Media Summary

The Mango Industry now has access to more than 1460 mango-related articles published in Australia in one easily searched package. This is the electronic mango research compendium, Mango Reference Database 2007 CD-ROM developed by the Department of Primary Industries and Fisheries, with the support of the Australian Mango Industry Association and Horticulture Australia Limited.

This means no more searching or rummaging around for files and folders, no more filing, and no more reams of paper and printing. The Mango Reference Database is an easy-to-use database. It is easy to install and run. Simply insert the CD-ROM in the computer's CD/DVD-drive, and follow the instructions on the screen.

It is that simple. There is no need to read all of the instructions before using the database. The integrated help system in the database can be easily accessed while you are working with the program so there is no need to exit the program if you need further instructions.

The Mango Reference Database includes powerful search tools that allow the user to locate specific references using a range of criteria including keywords, title, author, and source. It is also possible to search for specific combinations of words or phrases within abstracts where these are available.

Features of the database

- Full source documents for many references available on the CD-ROM
- Links to key sites, agencies and web-based documents included
- Bibliographic details for each reference, including abstracts
- Simple and advanced search facilities
- Tagging, sorting, printing, and exporting of search results.

The team gratefully acknowledges the many publications, organisations and individuals for releasing copyright on abstracts and papers incorporated in the Mango Reference Database, and acknowledge the Databases from which information was supplied.



## Technical Summary

Improving access and availability of information and technology from mango research and development (R&D) work has been identified as a major issue confronting the mango industry R&D effort. With the industry recently adopting a national levy for R&D and market development, there was a need to record and archive research and development results from at least the past two decades. This would allow for continued and improved access for members of the mango industry.

The Mango Information Delivery Initiative project addresses the issue of technology transfer for the mango industry particularly for key work supported by the Australian Mango Industry Association and Horticulture Australia Ltd.

The key output of the Mango Information Delivery Initiative project is the Mango Reference Database 2007. The Mango Reference Database delivers twenty years of research knowledge, available literature, and published information about mango to growers in one easily searched package. It contains references and links to over 1460 mango-related documents published in Australia.

The interactive CD format allows users to retrieve information instantly. The Mango Reference Database includes powerful search tools that allow the user to locate specific references using a range of criteria including keywords, title, author, and source.

Features of the database are

- Full source documents for most references available on the CD-ROM
- Live links to web-based documents and key sites included
- Bibliographic details for each reference, including abstracts
- Simple and advanced search facilities
- Tagging, sorting, printing, and exporting of search results.

The Mango Reference Database was intuitively designed, so you can learn as you use the program. The Mango Reference Database was designed to have the capacity to add further publications. It has been also designed to be Microsoft® Windows Vista ready, the recently released graphical operating system.

An extra functionality of the database is that it has been designed so that it may be installed onto a website. Having a dynamic presence on the web, with a website that is easy for industry and your prospective clients to find and use will certainly add value by serving the database as a web-based application. As new data becomes available, it can be added to the database on the website only. However, the administration managing the database will need to seek copyright release for additions to the database and establish some form of grower registration/membership to access the “dynamic” database.



## Introduction

Technology transfer is recognised as a problem in many horticulture industries. Poor adoption of research results in the mango industry suggested a need for an alternative approach for the transfer of technology. Improving access and availability of information and technology from mango research and development (R&D) work has been identified as a major issue confronting the mango industry R&D effort.

Research is undertaken, completed and written up but even after some extension effort, many growers do not take up the results. Earlier research is easily overlooked. In some cases, the research is even replicated, wasting researchers' time and industry money. This project sought to ensure that the significant investment made by the mango industry and Commonwealth and State agencies into R&D, will be recorded. Records will be kept in a way that is accessible and useful to both growers and researchers.

With the industry recently adopting a national levy for R&D and market development, there is a need to record and archive research and development results from at least the past two decades. This will allow for continued and improved access for members of the mango industry.

A large amount of literature exists on mangoes but much of the information is scattered and may be difficult to locate. While researchers and scientists can use scientific databases for their literature searches, much of the useful R&D information is unknown and often difficult for the average grower to find.

The study by Holmes *et al.* (1999) identified information access as a key issue for many mango growers, including a lack of knowledge of many current research projects and results. In that study, "Improved technology transfer within the mango industry through comparative analysis and improved information access", 63% of the growers surveyed owned a computer and 26% of computer owners have access to the Internet. More than 60% would be interested in accessing mango information on the Internet if available. Computer ownership was expected to rise by 20% in 12 months, suggesting that all current growers would own a computer now.

The Mango Information Initiative project investigated the development of an electronic mango research compendium to address the issue of technology transfer for the mango industry particularly for key work supported by the Australian Mango Industry Association and Horticulture Australia Ltd., and aimed to deliver twenty years of research knowledge to mango growers in one easily searched package. The CD-ROM was designed to answer growers' information needs and to ensure that research results are not lost or hidden in rarely accessed archives. Access to research papers could assist with industry strategic planning, particularly in the development of their new research strategic plan.

The compendium database was developed to be utilised in two ways; firstly, as an interactive CD and, secondly, as a web-based information resource at some future time. In both cases, the database included mango research work conducted in Australia.

## Materials & Methods

Electronic publishing is an area currently undergoing rapid change. Selecting a database for any application is not an easy task and it requires a lot of research. Every database has some advantages and disadvantages and its selection is ultimately based on one's requirement and the nature of the application.

The Mango Reference Database Software was designed for commercial mango producers, extension staff, researchers, and other information service providers to the mango industry. The implementation time of the project was short, about 18 months.

There were three main prerequisites for the database.

- It must be user-centred.
- It must be simple to use.
- It must be cost-effective.

Other important factors that contributed to the development of the database included

- expertise available from database consultant
- dependency of the application, i.e. giving identical search results every time
- application performance, i.e. delivers results within 10 seconds
- operating system
- licensing and copyright
- client and stakeholder profile and
- security and sensitivity of the data.

The database or electronic filing system should essentially be a collection of information organised in such a way that a computer program can quickly select desired pieces of information. To access information from the database, a database management system was needed. The database management system is a computer program that enables one to enter, organise, and select data in a database.

The Mango Reference Database consisted of three parts:

- A database of documents,
- A search engine operating on that database, and
- A series of programs to determine how search results are displayed.

### ***Database Mapping***

Mapping of the reference database integrated essential major elements

1. Landing page design
2. Search for mango literature
3. Copyright release and acknowledgement
4. Data entry and storage
5. Literature review and key wording
6. Search engine
7. Database development and Builder Application
8. Documentation and instructions for use
9. Testing and release

## **1. Landing Page Design**

Although graphic design, whether for the CD-ROM or website is important, its *usability* is the key factor.

The visual design or its look and feel can say much about the organisation or corporation however, the key to making sure your users get the most out of your database has less to do with funky graphics than it does with *usability*.

### **Database Architecture**

Based on intuitive experience simple diagrams were produced to map the architecture or design of the information database. The diagrams allowed a pictorial mapping of the database's information flow and hierarchy.

It was through the architecture development that we could identify the most suitable way to present the database's content and achieve optimum usability and accessibility. Once the information and architecture were decided upon, construction of the concept page was progressed.

Page layouts, visual expression, style guide, photographs, illustrations, colour, logos, web links, and branding to develop the database's 'look and feel' were integrated with the Content Management System.

A forward-compatible database was developed with a layout that could be compatible for future development on the web and supported by the majority of web browsers.

The scope of the system was determined and relationships between different components established. This included

- functional interactions between separate components
- data interchange / transfer and
- data reproduction.

The database schema was based on the Avocado Reference Database (AvoInfo), as the data framework was well suited to rapid prototyping. The model was further evaluated and refined to fit the project's focus and requirements. The database structure was reviewed and modified at various stages.

## **2. Search for mango literature**

Many databases and literature sources, including commercial Databases and products were explored and scrutinised because of the considerable amount of information. The databases contained references to articles published in journals, magazines, newspapers, book reviews, conference proceedings, reports, book chapters and other publications. Some databases contained or included links to full text articles.

The key databases explored included:

- CAB
- ScienceDirect
- FSTA Food Science and technology Abstracts
- Scopus

- Web of Science (ISI/Thompson Scientific)
- AGRICOLA (AGRICultural OnLine Access)
- AANRO (Australian Agriculture and Natural Resources Online)
- AgEcon Search
- AGRIS (FAO)
- Directory of Open Access Journals (DOAJ)
- Blackwell Synergy
- ISI Web of Knowledge
- ProQuest
- Other e.g. Google Scholar.

The uniform resource locators (URLs) to sources were saved. URL is the global address of documents and other resources on the World Wide Web. Lengthy URLs were truncated and the links were inoperable in early versions of the Mango Reference Database. Two options were possible; increase the length of the field in the database or alternatively, reduce posting of long URLs through the website TinyURL.

The lengthy URLs were untidy and often broke during data transfer. Long URLs were shortened using the tiny URL website, <http://tinyurl.com/>. The site claimed that the tiny URL created will not break and never expires.

The web links that had been created to Online Journal Sites (see section on copyright) routinely ask for passwords whenever access to material was sought. Corporate subscribers that have membership to the specific publisher have automatic access otherwise a fee for the article requested is charged.

While live web links generally are useful, the first-time user may find the login/password process daunting. Online journals offer rapid access and enriched content with powerful searching capabilities and links to other resources. Users could therefore access other available online resources. They can be used remotely at any time of day to gain access to the information.

The URLs that were recorded were checked over the period of the project and current and correct URLs added when pages were removed or changed. The project team acknowledges the likelihood of broken links and of links not working, and that the pages confronted may be look complicated. It is recommended that the reader contact a library in this case to access that particular article. References were accessed and made available locally in the CD-ROM where permitted.

References and documents were converted to the Adobe® Portable Document Format (PDF) as this standard maintained information integrity. Adobe® PDF is the *de facto* standard for secure and dependable electronic information exchange. This format allowed one to capture and view robust information, from any application and on any computer system. The documents could be shared with anyone. Adobe® PDF files looked exactly like the original documents and preserved source file information, including text, drawings, graphics and photos regardless of the application used to create them.

### **3. Copyright release and acknowledgement**

Copyright clearances were acquired to use published work and authorisations were sought from State Departments of Agriculture for extension-type publications. The organisations, publishers, and individuals are listed in Acknowledgements.

A copy of a permissions letter and approvals from the various agencies are attached.

Permission was granted from the following agencies to deposit a full electronic copy of the mango-related article published in the DPI&F Mango Information Database CD-ROM.

Queensland Department of Primary Industries and Fisheries  
Horticulture Australia Limited  
Australian Mango Industry Association  
Northern Territory Department of Primary Industry, Fisheries and Mines  
Western Australian Department of Agriculture and Food  
Australian Centre for International Agricultural Research  
New South Wales Department of Primary Industries  
Commonwealth Government of Australia, Biosecurity Australia  
Commonwealth Government of Australia, Australian Quarantine and  
Inspection Service (AQIS)  
Department of Primary Industries, Victoria  
Department of Primary Industries, South Australia  
National Land & Water Resources Audit

Sources of references were acknowledged and where available, a link to the web page for the article online was created from the article record. Lengthy URLs (uniform resource locators) to the web sources were abridged using TinyURL.

The authors also acknowledge the use of the TinyURL web site <http://tinyurl.com/> to make posting long URLs easier. Copyright © 2002-2007 Gilby Productions.

### **4. Data entry and storage**

The use of a bibliographic database for data and reference entry and temporary storage of references was a fundamental component during application development of the Mango Reference Database.

To keep track of references throughout the project during application development of the Mango Reference Database, a storage or library interface first, would need to be identified. The database required would essentially be a bibliographic management tool and would have the following features:

- allowed bibliographic details and citations of the material to be saved
- allowed notes and subject headings to the references to be added
- allowed references to be added manually
- allowed search and browse references for quick data retrieval
- allowed details of material to be imported directly from online databases and
- integrated with Word.

Several commercial programs were compared and trialled, including Extensis™, EndNote®, RefWorks®, Reference Manager® and Procite®. Although each of the various bibliographic management tools provided the above features and many more, EndNote® was chosen because it was simpler to understand and to use, and the short time frame learning the software.

EndNote® is a traditional database designed for researchers and scholars that specialises in storing, managing, and searching for bibliographic references. EndNote® was straightforward, simple to use and it was easy to keep track of references. Data transfer to the Builder Application of the Mango Reference Database was almost trouble-free once a facility was added and filters were encoded in the program to allow for direct transfer.

Duplicate records of the same reference were easily identified and treated accordingly. Bibliographic details and citations of references were effectively saved and successfully imported from external commercial databases.

Additional notes from the EndNote® database were imported and integrated into designated fields in the Builder Application with few hitches. The bibliography-generating software also allowed a database of references to be imported from on-line searches. Data and any corrections could be keyed in manually.

## **5. Literature review and key wording**

References and papers were reviewed by key researchers and staff to develop keyword searches (with links to articles/appropriate pages) for relevance. Key wording is a simple guide to describing articles for use in the electronic library and allowed the use of the database to the best advantage.

Choosing appropriate keywords is extremely important. Keywords are what lead search engine users to that reference. If key wording was done in an *ad hoc* manner, the structure of the electronic library could become confusing and inconsistent.

Keywords were added for predictive searching in the database and could help optimise visibility of references. How keywords were depicted and treated in queries in the search engine were important, with simplicity being of utmost importance. Choosing the right keywords is the first step to better search engine development. Using keywords could optimise the search engine.

Generally, when conducting a search we usually

- prefer typing short words, often just one keyword, into a box,
- tend to search by broader concepts first,
- work by refining searches in stages,
- misspell or mistype words surprisingly often, but usually get the ‘sound’ right,
- avoid advanced search forms if we possibly can,
- do not think about plurals, case, or ambiguity.

The list of keywords and categories of keywords that were initially built into the database and Builder Application were abandoned. Drop-down boxes with

predetermined keywords in earlier versions of the database were aborted, as the feedback was that it was too restrictive.

Instead, a revised searching code was created to include free string for keyword search in the title, keyword and abstract parameters. Users generally preferred to base their search by broader concepts and preferred to type simple words that came to them in the first instance. People will search for references using all sorts of keywords and phrases.

## **6. Search Engine**

A search engine is an information retrieval system designed to help find information stored on the database. The search engine helps to minimise the time required to find information and the amount of information which must be consulted.

Typically, a search engine works by sending out a spider to fetch as many references as possible. Another program then reads these references and creates a listing based on the words contained in each reference. The search engine then uses a formula or algorithm to create the listing such that, ideally, only meaningful results are returned for each query.

With the above keyword considerations in mind, the search engine in the database was developed to

- ignore upper- and lower-case, and treating both as equivalent,
- ignore plurals,
- offer partial matches (for example, searching for 'spot' will usually return 'spots' but could also find 'spotting'), and
- offer a simple and advanced search facility, to balance convenience against precision according to the situation.

The search engine provides an interface or communication to a group of references that enables users to specify criteria about a reference of interest and have the engine find the matching items within the group. The criteria are words or concepts that the references may contain.

As we generally preferred typing short or one keyword into a simple box and search by broader concepts first, the search engine was specifically developed to detect that word or phrase in the title and abstract only. Searching for keywords or phrases in the full document would take too long.

The design and construction of the search engine considered the following elements and aspects of each element (see table below).

Search criteria are entered in one or more search boxes. On pressing the search button, the keywords, title and abstract fields are searched. Limits to improve searching in the advanced search option were added.

AND or OR can be specified across the search criteria, but an implicit OR search is performed between the three fields in the database (i.e. keyword OR title OR abstract contains the string from the left box AND/OR the string from the right box where

applicable). Media type is queried using AND (i.e. media type must match for record to match).

<b>Element of Search Engine</b>	<b>Variables, and their implications for your searches</b>
<b>Database of references</b>	<p><b>Size of database:</b> Number of references and documents in database Links to documents and/or to external web sourced references and documents (limited to CD or copied to hard drive)</p> <p><b>Freshness</b> ("up-to-dateness"): Search engine databases consist of links and/or copies of web pages and other documents last visited. The database cannot be refreshed but web links to online sources may be depending on source</p> <p><b>Completeness of text:</b> Is the database "full" text, or only parts of the pages? Is every word indexed?</p> <p><b>Types of documents offered:</b> Web pages, HTML, Word, PowerPoint documents, etc. available. How will references and documents be treated or will these be formatted as PDF files? Are they full abstract or document searchable?</p> <p><b>Speed and consistency:</b> How fast is it? How consistent is it? Do you get different results at different times?</p>
<p><b>2. The search engine's capabilities</b> Enter some keywords and search on them. Limits imposed to improve accuracy of search</p>	<p><b>Basic Search options and limitations:</b> OR/AND option. Automatic default of AND assumed between key words. Accepts "phrase" in search Is there an easy way to allow for synonyms and equivalent terms (OR searching)? Can OR phrases or just single words be used?</p> <p><b>Advanced Search options and limitations:</b> Can you require your search terms in specific fields, such as the document title? Can you require some words in certain fields and others anywhere? Limit by media type or source (newsletter, scientific publication, fact sheet etc.). Can limits be set for more than one category? Limit by language – English. Searches limited to CD - reliable and easy, not updated</p> <p><b>General limitations and features:</b> What is the maximum limit on search terms or on search complexity?</p> <p><b>Ability to search within previous results:</b> Advanced search - options and refining Are results from search to search and from day to day consistent? Can the search be customized; using advanced search and/or display properties?</p>
<p><b>3. Results display</b> Returns a list of results it "thinks" are what you are looking for</p>	<p><b>Ranking:</b> Not ranked or can certain fields can be sorted alphabetically or year?</p> <p><b>Display:</b> Can keywords be highlighted in results of search or displayed elsewhere? Text in print page may be able to address this and highlighted in context, showing excerpts from the web pages, which caused the match. Can the results displayed be changed and saved?</p>
<b>4. Other features</b>	<p>Consider interactive help or print copy option. Allow for printing, saving and editing searches.</p>



## **7. Database development and Builder Application**

The central concept of the Mango Reference Database was that of a structured collection of references, records, and pieces of knowledge. The database would support a query language or program that was simple to use, manage and query the database. The interface to the CD with the search engine and any links was also being developed.

The design of the search interface on the Mango Reference Database and Builder Application software were developed by Shane Mulo, Department of Primary Industries and Fisheries, and was based on the AvoInfo database.

The types of bibliographic facts that are held in this database are:

- Title
- Authors
- Address
- Source
- Year published
- ISBN / ISSN
- Language
- Media type
- Copyright information
- Abstract
- Source document

### **Mango Reference Database Builder Application**

The Application Builder software allowed data and information from the temporary database used, EndNote<sup>®</sup>, to be imported into the Mango Reference Database and to add, edit or delete references.

Filters were developed to allow references to be imported in the first instance and further references could be added later. The references were automatically saved and updated into the database.

A suitable format and file structure for the imported records and fields was developed. Data from EndNote<sup>®</sup> were exported into the Mango Reference Database in XML or Extensible Markup Language. This format was chosen to facilitate the sharing of data across different information systems, optimise data transfer and minimise transmission of “noise”. A facility was added to the builder application so that it could import references from the XML files.

- XML – each row in the table was imported with an identifying <Row> XML element and each column entry was identified by an XML element that matched the column name. This format also included a commented header documenting the SQL SELECT statement used to retrieve the data.
- XML Structure – Each row in the table was exported with an identifying XML element that matched the exported table name, and table hierarchies and relationships allowed to be preserved during data transfer.

Other formats for data transfer possible included

- CSV – each row imported as plain text, with multiple delimiter and newline options.
- HTML – each row imported with HTML coding to form an HTML table that can be opened in a Web browser or incorporated into a larger HTML page.
- Excel – each row imported directly to a Microsoft Excel spreadsheet file.

## **8. Documentation and Help Files**

A complete, context-sensitive online help system was included and automatically integrated within the software and is accessible in the Help menu within the database application. The integrated help file allowed access to information quickly without having to exit the database. The set of help folders can be accessed / viewed, saved, and or printed at your convenience.

Information about the search functions was described. Quick and detailed guides to installation were addressed. These are attached in the Appendix.

## **9. Testing and release**

### **In-Development Testing**

The testing process was undertaken to determine user preferences. This also allowed the user to witness, scrutinise and analyse the evolution and implementation of functional requirements as they became available. Problems with the database related to performance or operational issues were quickly identified and fixed.

We tested the application and database to make sure that the:

- Migrated data were complete and accurate
- Application functioned as expected
- Database and search engine produced the same results each time

Testing involved creating a controlled version of the migrated database by designing a small set of references or cases. The test cases allowed us to identify and/or to verify that:

- the references and data in the source database have migrated successfully
- fields have the correct structure to allow direct transfer
- all data were migrated successfully by comparing source database and application database
- facilities and filters required to facilitate transfer of consistent data were operating
- the constraints that prevented entry of valid data.

We then fixed the errors. This process ensured that developer and user always understood and agreed on the project's progress and alterations, and can be confident that all functional requirements were met. This approach exposed any problems, deficiencies and miscommunications that could be resolved swiftly and effectively.

Trial testing of early versions of the database was undertaken to expose and determine the ease of use, hitches, technical malfunctions, hyperlinks, live links and workability

of the electronic database. Feedback ensured that potential problems, technical hitches of installation, searching, saving and printing were resolved.

This testing was important at various stages in order to remove the faults that caused failures, and allowed the team to track progress and compare previous versions. While the majority of hitches could be resolved, the web links included in the database can change as pages and sites were updated or removed. This issue remains a difficult one to resolve.

## **Final Testing**

When all the modifications to the database structure and the major phases of the development were completed, the database was submitted for final testing. The objective is to provide confidence that the delivered database system meets the requirements of users. This may also act as the final quality gateway, where any quality defects or deficiencies not previously detected may be uncovered. Quality can mean dependability.

The most progressive view of quality is that it was defined entirely by the end-user and is based upon that person's evaluation of his entire experience. The experience is the aggregate of all the touch points that users have with the database, and is by definition a combination of these.

Dataset constraints, its use and access constraints were determined and included

- Ease of installation
- Running the program
- Help function
- Using the url link from the database
- Any other restrictions.

Generally, the feedback was positive, that the database gave the same results each time and was typically easy to use. The user experience was straightforward and unproblematic. Users were pleased that full copies of references were made available promptly. Some found accessing online journals complicated and some were taken aback when asked for payment for full articles.

A few URLs were found to be inoperable and that the site had moved. The project team acknowledges the likelihood of broken links and of links not working, checking and recording the most up-to-date URLs at the time of going to press.

A main comment was that a CD rather than DVD would be preferred, as not all users would have a DVD drive. The team had already considered that production issue and we were working on compressing the references even further to ensure they fitted on a regular size CD.

More than 65 users were also selected for application testing, involving industry, researchers, growers and service providers. The wider testing would help to determine coding errors, broken links, dead-ends, and related problems affecting the functioning of the application, that may have been inadvertently missed in earlier testing phases.

## Results

Lessons learned in during test development of the prototype system, what worked and did not work were outlined. The Mango Reference Database CD-ROM (attached) developed in this project contains 20 years of research results and information conducted in Australia.

The Mango Reference Database is a purpose-built solution that meets the distinct need to capture and present a catalogue of much of the available literature and published information about mangoes, mainly from Australia from 1985. A complex application was designed and developed into a user-oriented and simple to use database.

The database contains over 1460 references, of scientific and grey literature, many of which have links to complete articles. One thousand, three hundred and ninety-three references contained abstracts and information describing the content of the article. The 68 references that did not contain any information in the abstract section were generally final annual reports from various agencies and were dated references.

Mango Reference Database 2007 contains 350 magazine articles, 340 project reports, 246 conference proceedings, 173 scientific journal papers, 90 fact sheets, 83 books, 78 miscellaneous publications, 46 agricultural notes, 21 newsletter articles, 9 leaflets and 25 source unknown references.

- The Queensland Department of Primary Industries and Fisheries provided access to about 351 references
- The Northern Territory Department of Primary Industry, Fisheries and Mines made available about 100 articles
- About 60 project reports were sourced from the Australian centre for International Agricultural Research
- Nearly 80 project reports from Horticulture Australia Limited and
- Ninety references were accessed from the Commonwealth Scientific and Industrial Research Organisation databases.

The Northern Territory Department of Primary Industry, Fisheries and Mines provided a large volume of references, which otherwise would have been difficult to locate and access. Other sources of references were directly provided by state departments, organisations and individuals, and the project team gratefully acknowledge their contributions.

Breeding, cultivars, rootstocks, species, propagation, disease, floral biology, growth regulators, marketing, orchard practices, orchard management, disorders, pest, pest management, physiology, nutrition, post harvest, supply chain, soils, etc. are some of the categories covered in the database.

A storage or library interface, using, EndNote<sup>®</sup> Version 7, was selected for collating, editing and referencing bibliographic material of identified references and for preliminary storage. Other commercial software that were compared and trialled were

Extensis™, RefWorks©, Reference Manager® and Procite®. At least 14 research databases were interrogated and searched for mango information.

The Mango Reference Database provides both simple and advanced search options. References can be searched according to keywords, title, author, source or abstract. Key wording is a simple yet predictive guide used in searching databases and assisted in optimising searches and improving visibility of references. Keyword search was limited to the title and abstract as searching the full document would increase the search time. Searches for all references could be specified or limited by a specific author, word in the abstract, media type or title.

Microsoft Windows® (XP or later) is the Operating System platform used for Mango Reference Database 2007. The database was recently updated to be Windows® Vista ready and has the capacity to have new references added.

## Discussion

The Mango Reference Database 2007 produced from this project is a user-oriented database developed for growers, and contains references to over 1460 articles ranging from breeding, orchard management, disease, pest and marketing, etc. The challenge in this project was to access and locate articles, including grey information sources that were not recorded in commercial databases. There were also many 'unpublished' works provided by many researchers, and these would otherwise not be available or accessible through the normal channels.

Improved access to technical and scientific reports and, a "one stop" information shop were two important issues identified in the "Improved technology transfer within the mango industry (FR97008)" project. "Analysis of mango production practices and R&D needs" (MG04004) identified significant gaps in knowledge between what research and extension that had been conducted and what growers wanted to know.

This electronic filing system is a "one stop" collection of selected mango information organised in such a way that desired references could be selected using a computer program, quickly and effectively.

The Mango Reference Database is like a mini-library catalogue, which contains records of references or resources held, but does not describe detailed information about book chapters or articles in journals. Each record consists of fields such as author, title, publisher, source, media type and description. The resources or research articles in this database are held in the CD-ROM. This feature of the database enhances usability by providing immediate and convenient access.

Subscription to Commercial Subject Databases, available via the internet, e.g. CAB, Agricola, ScienceDirect, etc. allowed us to search and locate articles in journals, magazines and newspapers. Some also contained references to reports, conference proceedings, book chapters and other publications. Some of these databases contained a mixture of record types including full text, abstracts or citations.

Facilities and filters built into the Database Builder Application facilitated direct transfer of bibliographic data from EndNote<sup>®</sup> and commercial databases. Linkages between the reference database and the source PDF files or references were based on the reference number of the source file being the same as the reference number field. This provided a quick and effective way for the database to look for and find the source articles. Source PDF files then would only need to be renamed to match the reference numbers from the database.

Source article titles in plain English were initially considered and this would require an additional field to the database and the need to enter the titles exactly into the database via the Builder Application.

The layout of records generated by a database search contains the following fields:

- Title of article
- Author of article

- Publication date
- Source of article
- Abstract
- ISBN / ISSN
- Publication type
- Copyright information
- Article language

The features of the database include:

- Text box to type in a search term
- Simple and advanced searching options
- Combining search terms and fields
- Limiting search preferences by field e.g. publication type, title, author
- A search results display
- A search history display
- Integrated help where you can find out more information from the database HELP menu.
- Ability to choose or mark records so you can compile your own list of results
- Ability to print, save and email results

Testing and evaluation were integral parts of the project. The database was tested and feedback was collected from participants during the operation and development of the reference database. The information and feedback were used to shape and improve the workings of the database. Things that worked or did not work, user preferences, e.g. simple search facility, display, save facility, etc. were picked up, revised and altered.

Clients would desire the ability to real-time access to the database over the internet in the future, and serving the database as a web-based application on the industry's website could allow the database to be updated regularly. The administration managing the database however, will need to seek copyright release for additions to the database and establish some form of grower registration / membership to gain access to the "dynamic" database.

In conclusion, the interactive CD format allows users to access and retrieve information instantly. The Mango Reference Database CD-ROM includes full copies of published work (where available) or abstracts, on mango and mango-related research in Australia for the last 20 years. The database is a user-friendly electronic database. It includes powerful search tools and allows the user to locate and access specific references instantly.

## **Technology Transfer**

The Mango Reference Database CD will be provided to all bona-fide Australian mango growers via the Australian Mango Industry Association. The CD will also be provided to R&D providers, known service providers and regulatory staff. The mango industry will be notified through the normal channels – newsletters, e-mail, industry promotions and media coverage following release of the CD-ROM.

A nearly completed version of the database was used at the Amistar 6<sup>th</sup> Australian Mango Conference, The Business of Mangoes, 22nd to 25th May 2007, Gold Coast International Hotel to demonstrate and promote the features of the database. Feedback from participants was incorporated prior to trial evaluation.



## Recommendations

The Mango Reference Database experience showed that it was easily installed and users had no or little inconvenience in its use. The integrated help system can be accessed on screen anytime. The provision of the interactive 'road map' to information together with improved accessibility, are important factors influencing the success of this product.

Access to and use of computers will be a critical determinant to the success of the technology transfer rate and its adoption.

Some activities that could be undertaken to promote and enhance use of the database include,

- Uploading to AMIA (Australian Mango Industry Association) website. While the Mango Reference Database CD-ROM however, would not be able to be updated, the database was designed to have the capacity to add new references. Being Windows Vista ready will permit ease of revision. Serving the database as a web-based application on the industry's website can add value to the information needs of the industry by providing updated research results. Clients can have real time access. Web-based expert technologies can be applied to help improve the database reference service and deal with new service needs created by the expanding availability of online information resources.
- Evaluation about the use of database. An evaluation on the use and features of the database eight to ten months after release could help make judgements about its success or otherwise, and/or what to do to make it better. While the feedback can identify areas for further improvement, the current users of the CD-ROM may not experience the benefit, unless the database can be experienced online. We recommend a series of such snap-shots gathered over time, as this may also be useful in decision-making. This could include written surveys and short telephone calls.
- Extension and training in the use of the package for growers. The new national mango research and extension project and /or a complementary project, for example, MG05007 - Communicating to growers through regional forums subject to Farmbiz support, could be developed to include and provide training in the use of the package for growers in the main mango growing regions.

As the CD was developed with ease of use as a primary criterion, simple media articles demonstrating the use and value of the CD that will be disseminated to Mango researchers and service providers should ensure that most growers with basic computer knowledge would have no trouble accessing the information from the CD.

## Acknowledgements

The Mango Reference Database is a joint initiative of the Queensland Department of Primary Industries and Fisheries, Horticulture Australia Limited, the Australian Mango Industry, the Northern Territory Department of Primary Industry, Fisheries and Mines and the Department of Agriculture and Food Western Australia, with support from the following organisations:

- Australian Centre for International Agricultural Research
- CSIRO
- New South Wales Department of Primary Industries

The following people made the Mango Reference Database possible:

- Patricia Chay: project management, copyright checking, reference searches, reference sourcing, reference checking and keyword assignment, documentation
- Shane Mulo: software design and development, documentation
- Annie Black: reference sourcing
- Peter Johnson: reference sourcing
- Rowland Holmes: reference sourcing, checking & keyword assignment
- Terry Campbell: reference checking and keyword assignment
- Leanne Wright: scanning, reference sourcing, copyright checking, data input and administration
- Loraine Chapman: artwork and administration

The following people also provided invaluable assistance during the production of this or earlier versions of the Mango Reference Database:

- Irene Kernot: concept
- Pat Abbott: reference searches
- Janelle Dahler: GrowSearch reference searches

The project team also gratefully acknowledges the assistance provided by the many authors and editors who graciously consented to the inclusion of their material in this system, and who in some cases helped source specific references. We gratefully acknowledge the following publications, organisations and individuals for releasing copyright on abstracts and papers incorporated in the Mango Reference Database, and acknowledge the Databases from which information were supplied.

- AANRO Australian Agriculture and Natural Resources Online
- Academic Press, Inc.
- ACIAR Australian Centre for International Agricultural Research
- ACOTANC
- Act Horticulture
- Agricultural Publishers Pty Ltd
- Agra's Research
- American Society of Plant Biologists

- AMIA Australian Mango Industry Association Ltd
- Annals of Applied Biology
- Annals of Botany
- APEN Australasia Pacific Extension Network
- AQIS Australian Quarantine & Inspection Service
- ASEAN Food Handling Bureau
- ASEAN Food Journal
- Asian Network for Scientific Information
- Aspects of Applied Biology
- Association of Applied Biologists
- Australasian Plant Pathology
- Australian Biologist
- Australian Department of Agriculture, Fisheries and Forestry, Canberra ACT
- Australian Entomological Society
- Australian Entomologist
- Australian Farm Journal
- Australian Geographer
- Australian Journal of Agricultural Research
- Australian Journal of Botany
- Australian Journal of Entomology
- Australian Journal of Experimental Agriculture
- Australian Journal of Experimental Agriculture and Animal Husbandry
- Australian Journal of Plant Physiology
- Australian Olive Grower
- Australian Organic Journal
- Australian Society of Plant Physiologists
- Biological Farmers of Australia Co-op Ltd
- Biomed. Environ. Mass Spectrom
- Biosecurity Australia
- Biotropica
- Blackwell Synergy
- Blackwell Verlag, Berlin
- CAB Direct
- CAB International
- Commonwealth Government of Australia
- Computers and Electronics in Agriculture
- Cooperative Research Centre for Tropical Plant Protection
- Crop Protection Bulletin
- CSA Community Supported Agriculture, US Department of Agriculture
- CSIRO Publishing
- Department of Primary Industries Agency for Food and Fibre Sciences, Australia
- Department of Primary Industries, Victoria
- DPI&F Department of Primary Industries and Fisheries, Queensland
- ECOS Environmental Councils of States, US
- Elsevier B.V.
- European Journal of Marketing

- Food Australia
- Food Policy
- Food, Agriculture and Environment
- Functional Plant Biology
- General and Applied Entomology
- Good Fruit and Vegetable
- Growcom
- HAL Horticulture Australia Ltd (formerly Horticultural Research and Development Corporation)
- Heron Publishing, Victoria, Canada
- Horticulture Australia
- Hortscience
- Ingenta
- Institute for Horticultural Development
- Institute of Food Technologists
- Integrated Logistics Network
- International Association for Plant Tissue Culture
- International Journal of Acarology
- International Journal of Food Microbiology
- International Journal of Pest Management
- International Plant Propagators' Society
- ISHS: International Society for Horticultural Science
- Journal of Agriculture Western Australia
- Journal of Applied Entomology
- Journal of Food Composition and Analysis
- Journal of Food Science
- Journal of Horticultural Science
- Journal of Horticultural Science and Biotechnology
- Journal of Plant Nutrition
- Journal of the American Society for Horticultural Science
- Journal of the Australian Entomological Society
- Journal of the Australian Institute of Agricultural Science
- Journal of the Korean Society for Horticultural Science
- JSTOR The Scholarly Journal Archive
- Katherine Rural Review
- LWRRDC Land and Water Resources Research and Development Corporation
- Marketing Line Consultancy
- MCB University Press
- Mycologia
- Mycopathologia
- Northern Territory Department of Primary Industry, Fisheries and Mines
- Northern Territory Government
- Northern Territory Horticulturist
- New South Wales Department of Primary Industries
- Paul Baxter
- Permanent Agriculture Resources

- Pesticide Science
- Plant Pathology Journal
- Plant Protection Quarterly
- Plant Varieties Journal
- Postharvest Biology and Technology
- Practical Hydroponics and Greenhouse
- Primary Industries and Resources, South Australia
- Quality Assurance in Agricultural Produce
- Queensland Agricultural Journal
- Queensland Fruit & Vegetable Growers (QFVG)
- Queensland Fruit & Vegetable News
- Queensland Journal of Agricultural and Animal Sciences
- Rare Fruit Council of Australia
- Rural Press
- ScienceDirect
- Scientia Horticulturae
- Scopus Info
- Singapore Journal of Primary Industries
- Society of Chemical Industry
- South Australian Government
- Springer
- Taylor & Francis
- The Council of Australian Food Technology Associations Inc.
- The Thomson Corporation
- The University of Queensland, Queensland
- The University of Sydney, New South Wales
- Town and Country Farmer
- Transactions of the British Mycological Society
- Tree Physiology
- Viking O'Neil
- West Australian Nut and Tree Crop Association
- Western Australian Department of Agriculture and Food

The authors also acknowledge the use of the TinyURL web site <http://tinyurl.com/> to make posting long URLs easier.

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# Permissions

## A copy of Permissions Blanket for Copyright Release

The Permissions Manager  
Department of Agriculture Western Australia

Dear Sir/Madam,

The Queensland Department of Primary Industries and Fisheries is undertaking a project, *Mango Information Delivery Initiative*, to investigate the development of an electronic mango research compendium. This project addresses the issue of technology transfer for the mango industry and, is supported by the Australian Mango Industry Association and Horticulture Australia Ltd. The Northern Territory Department of Business Industry and Resource Development and the Department of Agriculture Western Australia are collaborating in the project. This project seeks to improve access and availability of information and technology from mango research and development (R&D) work. Peter Johnson, Horticulturist from Kununurra is our collaborator from your department.

The Department of Primary Industries and Fisheries requests permission to deposit in the DPI&F Mango Information Database CD-Rom, an electronic copy of the mango-related articles published by your agency. The Department of Primary Industries and Fisheries is a government department in the State of Queensland, Australia. All DPI&F authors are in the employment of the Department whilst the research is conducted.

The database will have the capacity to have new publications added, once established on the Australian Mango Industry Association (AMIA) website, and the AMIA will seek copyright release for additions. CD's will not be able to be updated.

This project is designed to freely disseminate mango research conducted in Australia to Australian growers and other information service providers to the mango industry. If we are permitted to deposit a copy of the articles there, we propose to provide acknowledgement of your organisation as the source of the articles. We will also create a link to the web page for the article online from the article record, where available.

The Queensland Department of Primary Industries and Fisheries has had a long and profitable relationship with Department of Agriculture Western Australia, effectively transferred technology while continuing with applied research in several areas.

Yours sincerely,

**Dr Patricia Chay**

Information Extension Officer

**Regional Delivery**

Department of **Primary Industries and Fisheries**

**Telephone** 07 4064 1179 **Facsimile** 07 4064 2249

**Email** patricia.chay@dpi.qld.gov.au

**Website** [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) **Call Centre** 13 25 23

*Profitable primary industries for Queensland*

**Copyright release from Australian Mango Industry Association Ltd  
(AMIA) Mon 18/09/2006 11:10 AM**

Hi Patricia,

Apologies for the delay, but we are happy for information we have to be used in the Mango Information Delivery Project.

Kind Regards

Trevor

---

**From:** Chay, Patricia [mailto:Patricia.Chay@dpi.qld.gov.au]  
**Sent:** Friday, 30 June 2006 10:33 AM  
**To:** idm@mangoes.net.au  
**Cc:** Wright, Leanne  
**Subject:** Copyright Release Request  
**Importance:** High

Hi Trevor,  
It was good to catch up with you again.

Thank you for the confirmation regarding access to and copyright clearance to use published work from AMIA. Below is the formal request.

Mr Trevor Dunmall  
Industry Development Manager  
Australian Mango Industry Association Ltd

Dear Trevor,  
The Queensland Department of Primary Industries and Fisheries is undertaking a project, *Mango Information Delivery Initiative*, to investigate the development of an electronic mango research compendium. This project addresses the issue of technology transfer for the mango industry and, is supported by the Australian Mango Industry Association and Horticulture Australia Ltd. The Northern Territory Department of Business Industry and Resource Development and the Department of Agriculture Western Australia are collaborating in the project. This project seeks to improve access and availability of information and technology from mango research and development (R&D) work.

The Department of Primary Industries and Fisheries requests permission to deposit in the DPI&F Mango Information Database CD-Rom, an electronic copy of the mango-related articles published by your association. The Department of Primary Industries and Fisheries is a government department in the State of Queensland, Australia. All DPI&F authors are in the employment of the Department whilst the research is conducted.

## Copyright release from Horticulture Australia Limited

Hi Patricia,

Re the email below to Dzintra, my understanding is that as HAL is jointly funding the project, HAL will already be joint copyright owners of the final product. Therefore, there is no need for HAL to effectively provide a copyright release to itself for the HAL reports included in the final product.

Richard Stephens is the project manager for this project and is currently on leave but I believe those details are set out in the contract.

I also understand that the details of the distribution process for the final CD product have not yet been finalised. QDPI&F will need to obtain agreement from HAL on the distribution process before any CDs are distributed.

Re providing you with electronic copies of mango final reports there is no problem with this and we will get these sent to you on CD.

Sincerely,  
Karen

Karen Hellwig  
General Manager Corporate Communications  
Horticulture Australia Limited  
Suite 509, 685 Burke Rd  
Camberwell VIC 3124  
Ph 03 8080 5604  
Mob 0407 332 447

-----Original Message-----

**From:** Chay, Patricia [mailto:Patricia.Chay@dpi.qld.gov.au]  
**Sent:** Monday, 10 July 2006 12:57 PM  
**To:** Dzintra Horder  
**Cc:** Wright, Leanne  
**Subject:** RE: Approved FR01033 jt

On a different matter, DPI&F is undertaking a re Mango Delivery Initiative Project MG05006, to investigate the development of an electronic mango research compendium. This project is supported by the Australian Mango Industry Association and Horticulture Australia Ltd. This project seeks to improve access and availability of information and technology from mango research and development work, particularly those supported by Horticulture Australia Ltd (previously, HRDC)

I am seeking the project reports re anything mango, in electronic form, to deposit into this database. Can I obtain copies of the final reports as well as copyright release from HAL.



## Copyright release from Northern Territory Department of Primary Industry, Fisheries and Mines

**From:** Jason.deAraujo@nt.gov.au; on behalf of; Publications.DPIFM@nt.gov.au

**To:** Chay, Patricia

**Cc:** [Annie.Black@nt.gov.au](mailto:Annie.Black@nt.gov.au)

**Subject:** Re: Copyright release request

**Attachments:**  P12007\_Catalogue.p

Hello Patricia,

Permission is granted to use all or part of our technical publications in the manner described below. I have attached a copy of our Technical Publications Catalogue for your convenience.

(See attached file: PI2007\_catalogue.pdf) Regards Jason De Araujo  
Technical Publications Primary Industry Services Department of  
Primary Industry, Fisheries and Mines Berrimah Farm  
29 Makagon Road, Berrimah  
GPO Box 3000  
Darwin NT 0801  
AUSTRALIA

Tel: (08) 8999 2313  
International: +61 8 8999 2313  
Fax: (08) 8999 2307  
International: +61 8 8999 2307  
Mob: 044 888 2969  
International: +61 44 888 2969

Email: [publications.dpifm@nt.gov.au](mailto:publications.dpifm@nt.gov.au)

Website: <http://www.transact.nt.gov.au/technicalpublications>

ABN: 84 085 734 992

To download a free copy of Adobe Acrobat Reader, please go to  
<http://www.adobe.com.au/products/acrobat/readstep2.html>.

=====  
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=====

**Copyright release from Australian Centre for international  
Agricultural Research  
(ACIAR)**



**Australian Government**  
**Australian Centre for  
International Agricultural Research**

GPO Box 1571  
Canberra ACT 2601  
ACIAR House, 38 Thynne Street  
Fern Hill Park, Bruce ACT 2617  
T (61 2) 6217 0500  
F (61 2) 6217 0501  
E [aciar@aciargov.au](mailto:aciar@aciargov.au)  
ABN 34 864 955 427

7 August 2006

**Dr Patricia Chay**  
Information Extension Officer  
Regional Delivery  
Department of Primary Industries and Fisheries

Dear Dr Chay

Re: Copyright clearance

The Australian Centre for International Agricultural Research (ACIAR) authorises the Department of Primary Industries and Fisheries to deposit in their DPI&F Mango Information Database CD-Rom — DPI&F project, *Mango Information Delivery Initiative*, an electronic copy of the information on mango-research projects as provided, funded by ACIAR as well as documents and mango-related articles published by the agency.

ACIAR provides permission to the DPI&F to freely disseminate this information to Australian growers and other information service providers to the mango industry and understands DPI&F will acknowledge the organisation as the source of the information. ACIAR also allows the DPI&F to create a link to ACIAR's web page for the information online.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Lisa Wright'.

Lisa Wright  
Manager, Communications and Secretariat Unit  
ACIAR  
Phone:02 6217 0535  
email [wright@aciargov.au](mailto:wright@aciargov.au)



Part of Australia's development  
assistance program

[www.aciargov.au](http://www.aciargov.au)

## Copyright release from CSIRO

**From:** Carla.Flores@csiro.au [mailto:Carla.Flores@csiro.au]  
**Sent:** Tuesday, 10 January 2006 3:50 PM  
**To:** Fullelove, Garry  
**Subject:** RE: COPYRIGHT RELEASE FOR ARTICLES IN AUSTRALIAN JOURNAL OF AGRICULTURAL RESEARCH AND OTHER CSIRO MANGO PUBLICATIONS - Our Ref: CP2006-002

Dear Garry,

In response to your request and further to my earlier email, I'm sorry to say that **CSIRO PUBLISHING** cannot give you permission to reproduce the full text of our journal papers.

However, we give you permission to include in the QDPI Mango Information CD only the abstract, title and author information of any article on mangoes originally published by **CSIRO PUBLISHING** provided that the CD is not sold but is given away for free, and full acknowledgement is given to the source material, the authors and **CSIRO PUBLISHING**. You may also include a link to our site where an interested reader may access the full text of a paper for around \$20. If the content is from a **CSIRO PUBLISHING** publication other than a journal, it may not be available digitally. Please provide us with a complete list of this non-journal content you are interested in, as well as the list of the journal abstracts (including titles and authors) you will be using.

There is no charge for this permission, but we would appreciate receiving a copy of the CD for our records.

With kind regards,

Carla

---

Carla Flores  
Rights & Permissions  
**CSIRO PUBLISHING**  
150 Oxford Street (PO Box 1139)  
Collingwood, Victoria 3066

*tel:* +61 3 9662 7652  
*fax:* +61 3 9662 7555

Visit our website: [www.publish.csiro.au](http://www.publish.csiro.au)

-----Original Message-----

**From:** Fullelove, Garry [mailto:Garry.Fullelove@dpi.qld.gov.au]  
**Sent:** Friday, 2 December 2005 3:04 PM  
**To:** PUBLISHING - General Info; Flores, Carla (Publishing, Collingwood)  
**Subject:** COPYRIGHT RELEASE FOR ARTICLES IN AUSTRALIAN JOURNAL OF AGRICULTURAL RESEARCH AND OTHER CSIRO MANGO PUBLICATIONS

Dear Sir/Madam,

The Australian Mango Industry Association together with Horticulture Australia are co-funding the production of a Mango Information CD. The product will be published by the Queensland Government's Department of Primary Industries and Fisheries, which is the major funder of

the project. The venture is not for profit with copies of the CD being distributed free of charge to Australian mango growers.

We are seeking in the first instance an in principle agreement for copyright release by CSIRO Publishing for the abstracts and full text articles of mango related articles that we will detail for your specific permission further into the project.

This Mango CD will incorporate references, abstracts, and where possible full text articles that cover mango research in Australia in the past twenty years. The CD based archive will have an easy to use interface with a powerful search engine that will allow the user to search for references via key word, author, title, journal and/or abstract. The title, authors and relevant journal details will be cited. It is also desirable that abstracts and possibly full text be included in the archive.

Your consideration of this request for an in principle agreement at your earliest convenience will be appreciated. This will allow us to then develop a full list of CSIRO articles and publications that we will then present to you for final copyright release.

Thanking-you in anticipation.

**Garry Fullelove**  
Business Manager  
**Horticulture & Forestry Science**  
Department of **Primary Industries & Fisheries**

**Phone** 07 3896 9401 **Facsimile** 07 3896 9628  
**Mobile** 0427 124 578  
**email** [garry.fullelove@dpi.qld.gov.au](mailto:garry.fullelove@dpi.qld.gov.au)  
**Website** [www.dpi.qld.gov.au](http://www.dpi.qld.gov.au) **Call Centre** 13 25 23

## Copyright release from WA Dept Agriculture and Food



Department of Agriculture and Food  
Government of Western Australia



Dr Patricia Chay  
Information Extension Officer  
Regional Delivery  
Department of Primary Industries and Fisheries  
GPO Box 46  
BRISBANE QLD 4001

Our Ref: 1015/85:CH:RH:IKM  
Enq: Carole Harris  
Tel: 08 9368 3668  
Email: [charris@agric.wa.gov.au](mailto:charris@agric.wa.gov.au)  
Date: 17 July 2006

Dear Dr Chay

### COPYRIGHT CLEARANCE REQUEST

Thank you for your request for permission to deposit in the DPI&F Mango Information Database CD-Rom, an electronic copy of the mango-related articles published by the Department of Agriculture and Food. The Queensland Department of Primary Industries and Fisheries is undertaking a project, *Mango Information Delivery Initiative*, to investigate the development of an electronic mango research compendium. This project seeks to improve access and availability of information and technology from mango research and development work.

For and on behalf of the State of Western Australia, I am pleased to give the necessary clearance with provision that this information is to be used specifically for the above purposes and is not for profit. The Department of Agriculture and Food should be acknowledged for this contribution in an appropriate manner.

Should you have any questions regarding this clearance please contact Ms Carole Harris on telephone 08 9368 3668 or email [charris@agric.wa.gov.au](mailto:charris@agric.wa.gov.au).

Yours sincerely

CAROLE HARRIS  
ACTING DIRECTOR  
INFORMATION & KNOWLEDGE MANAGEMENT

Z:\PUBLICATIONS 65\Publications Management\Copyright & IP\Corres 2006\DPIF Qld 110706.doc

---

3 Baron-Hay Court, South Perth, Western Australia 6151  
Postal Address: Locked Bag 4, Bentley Delivery Centre WA Australia 6983

## Copyright release from NSW Department of Primary Industries

Dear Patricia,

Copyright clearance is granted as requested for the copying of electronic publications from the NSW DPI website for use on the CD for HAL as specified in the message below.. As I read your message, the publications will be linked back to our website for any updates etc. We would like the publications used in their entirety if possible, including all logos, copyright and disclaimer statements. Please acknowledge 'NSW Department of Primary Industries' and the individual authors where appropriate.

If I can be of any further assistance, please get back in touch.

Bruce Ward  
Manager Publishing  
Communications Branch  
NSW Department of Primary Industries  
Phone: 02 6391 3216  
Fax: 02 6391 3749

"Chay, Patricia" <Patricia.Chay@dpi.qld.gov.au>

04/07/2006 09:49 AM

To: <bruce.ward@dpi.nsw.gov.au>  
cc: "Wright, Leanne" <Leanne.Wright@dpi.qld.gov.au>  
Subject: Copyright release

.....

**Copyright release from National Land & Water Resources Audit (LWRA)**

Hi Patricia,

Thanks for your email.

This request is approved provided that the National Land & Water Resources Audit is acknowledged as the source.

Regards,

Genine

---

Genine Sutton  
Communication Officer  
**National Land & Water Resources Audit**  
P (02) 6263 6081 or 0408 230 403  
F (02) 6257 9518  
Web: [www.nlwra.gov.au](http://www.nlwra.gov.au)  
Postal address: GPO Box 2182 Canberra ACT 2601  
*This email is confidential. If received in error notify NLWRA by return email*

## Copyright release from Biosecurity Australia

Patricia

Biosecurity Australia does not mind if you include these in the CD; however issues of Biosecurity Australia News are likely to be out of date and could not necessarily be relied on for up-to-date advice.

Regards

John Wilson

Communications Manager

Biosecurity Australia

Tel: +61 2 6272 3811

Fax: +61 2 6272 3307

Visit: [www.biosecurityaustralia.gov.au](http://www.biosecurityaustralia.gov.au)

*Biosecurity Australia provides science based quarantine assessments and policy advice that protects Australia's favourable pest and disease status and enhances Australia's access to international animal and plant related markets.*

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**From:** Chay, Patricia [mailto:Patricia.Chay@dpi.qld.gov.au]

**Sent:** Tuesday, 29 May 2007 1:06 PM

**To:** Wilson, John C - BA

**Subject:** FW: Copyright clearance

**Importance:** High

Hi John,

I wondered if you had considered copyright clearance for my *Mango Information Delivery Initiative* project.

Regards

Patricia.



## References

- Department of Primary Industries and Fisheries (2004). AVOINFO. Avocado Reference Database. Second edition. ISSN 0727-6273.
- EndNote 7.0.0 (Bld 98). © 2003 ISI ResearchSoft, 800 Jones St., Berkeley, CA, 94710, U.S.A. <http://www.endnote.com/>
- Extensis Portfolio 7. © 2007 Extensis a division of Celartem, Inc.  
[http://www.extensis.com/en/about/press\\_release\\_content.jsp?releaseId=2900014](http://www.extensis.com/en/about/press_release_content.jsp?releaseId=2900014)
- Holmes, R. *et al.* (1999). Improved technology transfer within the mango industry through comparative analysis and improved information access. Horticulture Australia Ltd Project FR97008. ISBN 1 86423 955 7.
- ProCite 5 (2004). Copyright © 2007 The Thomson Corporation. Thomson ResearchSoft. <http://www.procite.com/>
- Reference Manager Version 8. © ISI ResearchSoft. Thomson ResearchSoft 2141 Palomar Airport Rd. #350 Carlsbad, CA 92011. <http://www.refman.com/>
- RefWorks Copyright © 2007.  
[http://www.refworks.com/content/path\\_manage/factsheets/FS\\_refworks.asp](http://www.refworks.com/content/path_manage/factsheets/FS_refworks.asp)
- Williams, B. (2006). Analysis of mango production practices and R&D needs. Horticulture Australia Ltd Project MG04004. ISBN 0734113242.

## Appendix – Instructions and Help Files

### ***The Mango Reference Database Software***

The Mango Reference Database Software was designed for use by commercial mango producers, extension staff, researchers and other information service providers to the mango industry. The database includes powerful search tools that allow the user to locate specific references using a range of criteria including keywords, title, author and media type. It is also possible to search for specific combinations of words or phrases within abstracts where these are available.

ISBN or ISSN numbers have been included where available, to simplify the process of sourcing original publications where required.

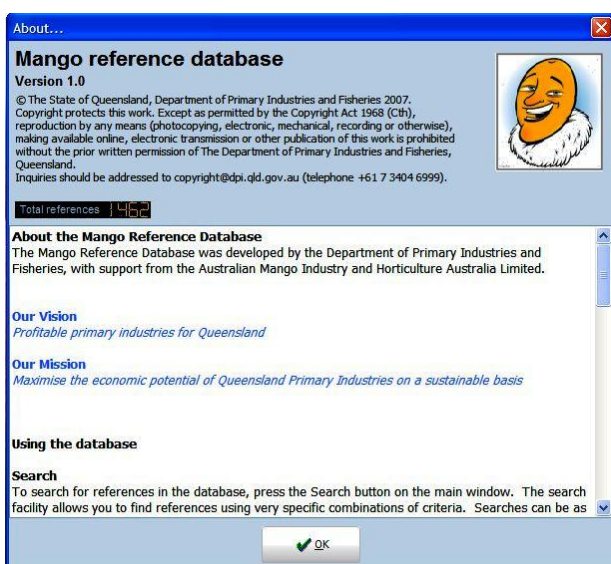
A Licence Agreement and Copyright protects the Mango Reference Database software, and this window appears during installation.

Included in the licence agreement is information about copyright obligation relating to the use of the information contained within the database.

By installing, loading or using the software, the user is consenting to be bound by the agreement.

The Mango Reference Database program has been developed with the support of many people and organisations. Please read the acknowledgements section to see who has contributed to the development of the database.

### ***About the Mango Reference Database***



The Mango Reference Database is an easy-to-use database. It is very easy to install, by simply inserting the CD-ROM in the computer's CD/DVD-drive.

The setup program starts automatically, and the user merely follows the instructions on the screen to install the program to the computer. Alternatively, the shortcut on the start menu may be used.

Information about using the database is detailed here and there is an integrated help file in the database.

## Using the database

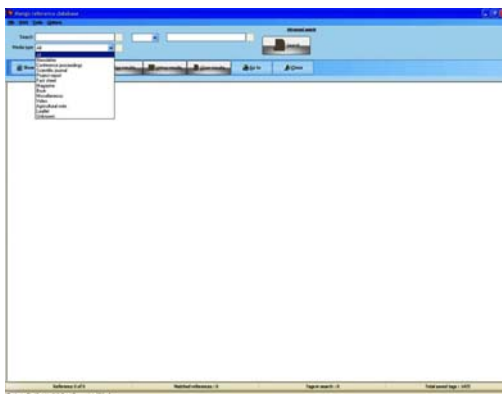
When the program is first loaded, the main window appears as shown. From this window, the user can access all of the main features of the program, including:

### Search

To search for references in the database, press the Search button on the main window. The search facility allows the user to find references using very specific combinations of criteria.



Searches can be as broad or specific as one wishes it to be. More information and instructions on searching for references have been made interactive within the program.



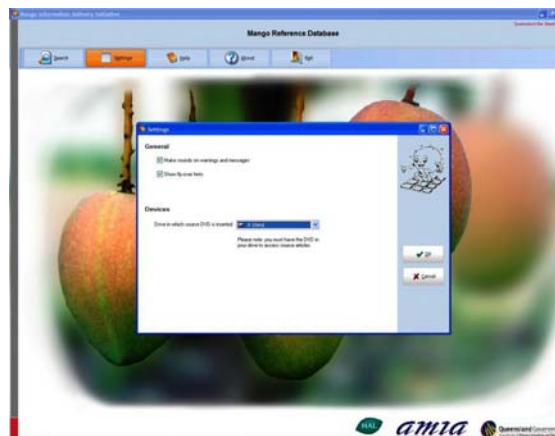
Simple Search



Advanced Search

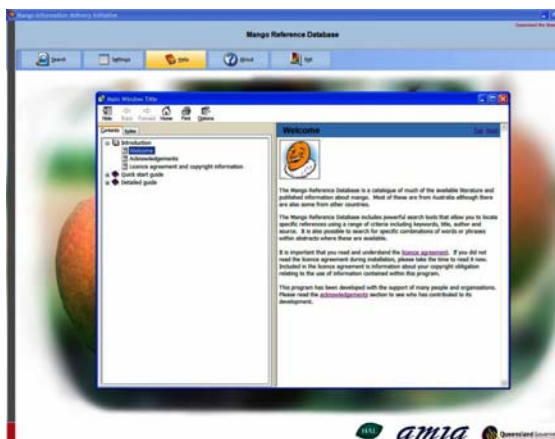
### Settings

This section allows the user to view or change settings for the program, including whether or not to make sounds and show hints. The letter of the CD/DVD-drive in which the source references can be found can be changed here.



## Help

The help option launches the help window, providing information on how to use the program.



## About

This button will display a window showing general information about the program, including the version, the Department's Vision and Mission, the number of references it contains, copyright and disclaimer information.



## Exit

This button closes the program.

## Disclaimer

The Mango Reference Database software is distributed by the Department of Primary Industries and Fisheries as an information database source only. The information contained in it, and other material incorporated by reference, is provided solely on the basis that the user will be responsible for making his/her own assessment of the content, and seek professional advice.



Users must note that the information contained in this Reference Database has been developed for growers in Australia, and the Department of Primary Industries and Fisheries and its collaborators in this product, give no warranty that the information is suitable for conditions outside the Australian areas for which it was produced.

Trade names are used in this Reference Database solely for providing specific information. Mention of a trade name does not constitute a guarantee or warranty by the Department of Primary Industries and Fisheries or the authors, nor is it an endorsement of these products over others not mentioned.

Links are provided solely for assisting users to make contact with individuals or organisations providing the information, and are accurate at the time of publication. Inclusion of a person or organisation does not constitute an endorsement by the Department of Primary Industries and Fisheries or the authors, nor does it endorse a particular person or organisation over others not mentioned.

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The database contains information about a range of agricultural and veterinary (Aglet) chemical products, many of which have exclusions, restrictions or warnings associated with their use. Agvet products must always be used carefully and in accordance with the relevant label or permit. It is imperative that the user always read the label or permit before use and check to ensure its currency. **ALWAYS READ THE LABEL.**

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## Quick start guide

When you first load the program, the main window appears as shown below:  
From this window, you can access all of the main features of the program, including the Help guide.

The database includes an integrated help system that can be accessed within the program by the help key on your keyboard (F1) or the help button in the program.

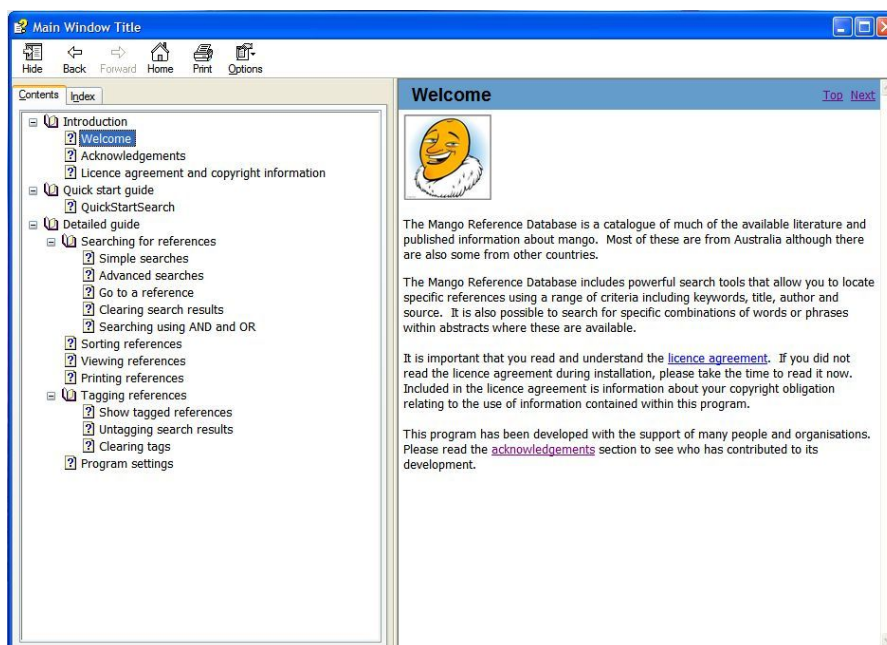
The printing option is available if you want to keep a paper copy.

The help guide has been designed with the user in mind. Instructions are clear and to the point.



## Help

The help option launches this help window, providing information on how to use the program. The contents include an Introduction, QuickStart guide, Detailed guide, Searching for references and Tagging references.



## ***Introduction***

The Introduction section includes,

Welcome

Acknowledgements

Licence agreement and copyright information.

It is important that you read and understand the [licence agreement](#) during installation. The licence agreement contains information about your copyright obligation relating to the use of information contained within this program.

This program has been developed with the support of many people and organisations. Please read the [acknowledgements](#) section to see who has contributed to its development.

## ***Licence agreement and copyright information***

### **Mango Reference Database**

#### **SOFTWARE Licence Agreement**

**BY INSTALLING, LOADING OR USING THE SOFTWARE,  
YOU ARE CONSENTING TO BE BOUND BY THIS  
AGREEMENT. IF YOU DO NOT AGREE TO ALL OF THE  
TERMS OF THIS AGREEMENT, DO NOT INSTALL OR USE  
THIS SOFTWARE.**

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To the extent permitted by law, DPI&F excludes all liability for any loss or damage (including direct, indirect, special or consequential loss or damage) arising from the supply or use of/ or reliance upon the results of the use of the SOFTWARE and/ or accompanying documentation.

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- ii. refunding the amounts paid by You for the SOFTWARE

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Without limiting the generality of the foregoing, DPI&F does not warrant, guarantee or make any representations whatsoever regarding the accuracy, reliability, friendliness, currency or any other aspect regarding characteristics or use of the SOFTWARE.

## **9. Australian Conditions**

You acknowledge that the SOFTWARE and any related documentation was developed to assist growers in making decisions in relation to Australian mango orchard management and therefore may not be suitable for growers or conditions outside of Australia.

## **10. Governing Law**

This agreement is governed by the laws of the State of Queensland, Australia.

## **11. Contact**

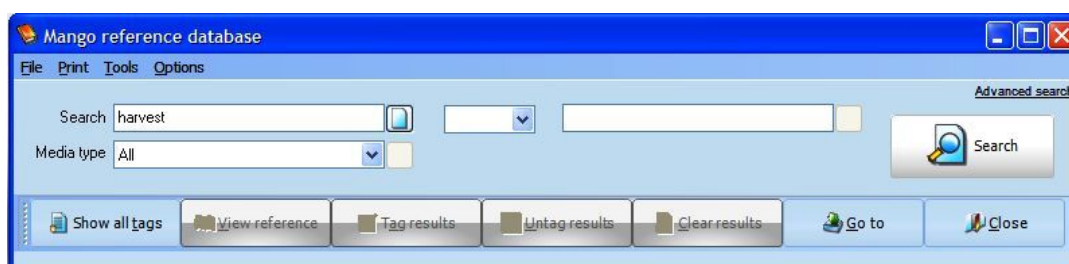
Should you have any questions concerning this agreement, or if you wish to contact the project team for any reason, please write to:

DPI&F Queensland  
PO Box 652  
Cairns  
Queensland 4870  
Australia

## QuickStartSearch

### Searching for references

The Mango Reference Database provides both simple and advanced search options. To use the simple search option, enter one or more words or phrases in the search boxes, choose the media type (or just select all) and press the *Search* button to perform the search.

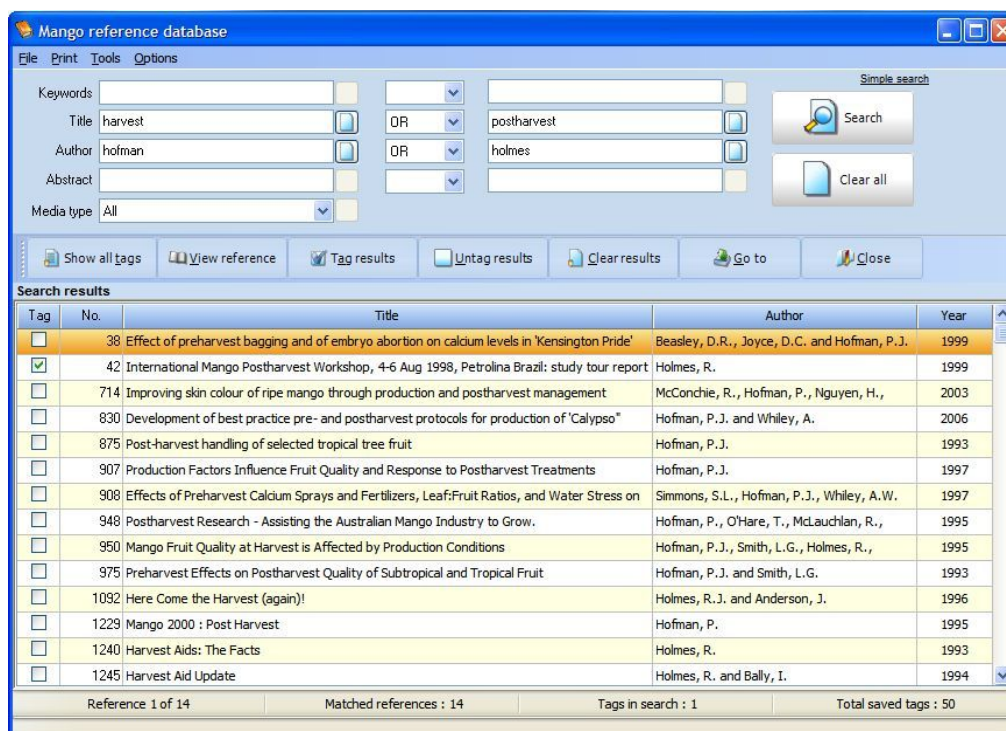


The results of your search will be displayed in the search results section, as shown below.

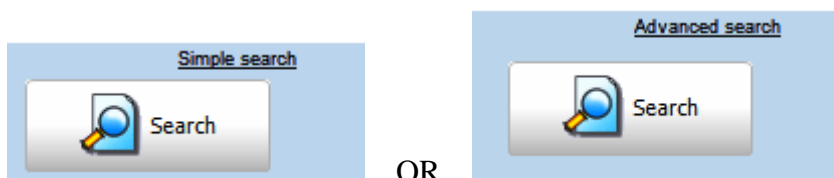
A screenshot of the Mango reference database search results. The window title is "Mango reference database". It shows the same search interface as the previous image, but with a "Search results" section below. The results are displayed in a table with columns for "Tag", "No.", "Title", "Author", and "Year". The table contains 27 rows of search results, with the first row highlighted in orange. The status bar at the bottom indicates "Reference 6 of 195", "Matched references : 195", "Tags in search : 8", and "Total saved tags : 50".

Tag	No.	Title	Author	Year
<input type="checkbox"/>	2	Controlled atmosphere storage affects fruit ripening and quality of Delta R2E2 mango	Lalel, H.J., Singh, Z. and Tan, S.C.	2005
<input type="checkbox"/>	14	Maturity stage at harvest affects fruit ripening, quality and biosynthesis of aroma volatile compounds in Kensington Pride mango	Lalel, H.J., Singh, Z. and Tan, S.C.	2003
<input type="checkbox"/>	23	Ripening of climacteric fruits initiated at low ethylene levels	Wills, R.B., Warton, M.A., Musa, D.M. and Chew, L.P.	2001
<input type="checkbox"/>	32	Quality assurance systems for ASEAN fruits (fresh and minimally processed)	Alexander, G.I. and Peacock, B.C.	1999
<input type="checkbox"/>	38	Effect of preharvest bagging and of embryo abortion on calcium levels in Kensington Pride mango fruit	Beasley, D.R., Joyce, D.C. and Hofman, P.J.	1999
<input checked="" type="checkbox"/>	42	International Mango Postharvest Workshop, 4-6 Aug 1998, Petrolina Brazil: study tour report	Holmes, R.	1999
<input type="checkbox"/>	51	Effect of partial pressure infiltration of calcium into Kensington mango fruit	Shorter, A.J. and Joyce, D.C.	1998
<input checked="" type="checkbox"/>	64	Effect of preharvest bagging on fruit calcium levels, and storage and ripening characteristics of 'Sensation' mangoes	Joyce, D.C., Beasley, D.R. and Shorter, A.J.	1997
<input type="checkbox"/>	67	Hot air disinfection of Australian Kensington mangoes against two fruit flies (Diptera: Tephritidae)	Heather, N.W., Corcoran, R.J. and Kopittke, R.A.	1997
<input type="checkbox"/>	70	Mango management: flowering to harvest	Northern Territory Horticulturist	1997
<input type="checkbox"/>	73	Mango skin browning: what are the causes?	Ledger, S., Underhill, S., Ferguson, J. and Holmes, R.	1997
<input type="checkbox"/>	82	Effect of hot air disinfection treatment in combination with simulated air freight conditions on quality of Kensington mango (Mangifera indica)	Jacobi, K.K., Wong, L.S. and Giles, J.E.	1996
<input type="checkbox"/>	95	Management of 'jelly seed' in mango (Mangifera indica L.) cv. Tommy Atkins: <Poster paper>	Mayne, D., Withanage, V. and Aylward, J.H.	1994
<input checked="" type="checkbox"/>	96	Mango anthracnose	Pilbethley, R. and Condo, B.	1994
<input type="checkbox"/>	99	Postharvest control of mango diseases	Johnson, G.I., Coates, L.M., Cooke, A.W. and Wells, I.A.	1994
<input checked="" type="checkbox"/>	104	Putting the heat on mango post harvest diseases	Coates, L., Cooke, T. and Davis, B.	1993
<input type="checkbox"/>	106	A closer look at the mango harvest aid	Meurant, N.	1992
<input type="checkbox"/>	110	The physiological responses of Kensington mango to heat disinfection treatments	Jacobi, K.K. and Wong, L.S.	1992
<input checked="" type="checkbox"/>	121	Mango sapburn - a major problem to be overcome	O'Hare, T., Norris, C. and Christensen, T.	1991
<input checked="" type="checkbox"/>	122	Optimum temperatures for mango ripening	O'Hare, T. and Prasad, A.	1991
<input type="checkbox"/>	123	Mango picking guide - Kensington Pride	Holmes, R.J., Campbell, T.P. and Ledger, S. N.	1990
<input type="checkbox"/>	125	Post harvest process key to mango quality	Anon.	1990
<input type="checkbox"/>	135	Post-harvest storage control of mango stem-end rot with fungicidal dips	Muller, A.T. and Burt, J.R.	1989
<input type="checkbox"/>	159	Mango nutrition - depletion of the reservoir of elements in an orchard through harvesting fruit	Beal, P.R. and Carseldine, M.L.	1985
<input type="checkbox"/>	161	The potential use of ionising energy treatment in Queensland's horticultural industries	Heather, N.W., Sheehy, P.T., Muirhead, I.F., Brown, B.I. and Johnson, G.I., Cooke, A.W., Mead, A.J. and Wells, I.A.	1989
<input type="checkbox"/>	172	Stem End Rot of Mango in Australia: Causes and Control	Johnson, G.I., Cooke, A.W., Mead, A.J. and Wells, I.A.	1989
<input type="checkbox"/>	173	Effects of 1-methylcyclopropene alone and in combination with polyethylene bags on the postharvest life of mango fruit	Jiang, Y. and Joyce, D.C.	2000
<input type="checkbox"/>	189	Effects of Postharvest Application of Ethephon on Fruit Ripening, Quality and Shelf Life of Mango Under Modified Atmosphere Packaging	Singh, Z. and Jones, J.	2000
<input type="checkbox"/>	198	Postharvest heat disinfection treatments of mango fruit	Jacobi, K.K., MacRae, E.A. and Hetherington, S.E.	2001
<input type="checkbox"/>	199	Phylogenetic and morphological re-evaluation of the Botryosphaeria species causing diseases of Mangifera indica	Slippers, B., Johnson, G.I., Crous, P.W., Coutinho, T.A., Wingfield, M.J., Jacobs, G., and Wingfield, B.	2005
<input type="checkbox"/>	208	Mango fruit calcium levels and the effect of postharvest calcium infiltration at different maturities	Joyce, D.C., Shorter, A.J. and Hocking, P.D.	2001
<input type="checkbox"/>	211	Early detection of abnormal skin ripening characteristics of Kensington mango (Mangifera indica Linn)	Jacobi, K., MacRae, E.A. and Hetherington, S.E.	1998
<input type="checkbox"/>	220	Pre-storage application of polyamines improves shelf life and fruit quality of mango	Mall, A.U. and Singh, Z.	2005


To perform a more advanced search, press the *Advanced search* option at the right of the window and then enter words or phrases into one or more of the search boxes available.



Switching between simple and advanced searches can be done simply by pressing *Simple search* or *Advanced search* at the top right of window.



Each reference includes bibliographic information including title, author, address, source, language and year published. Many references also contain abstracts and ISSN or ISBN numbers. In many cases, whole articles are included. Where copyright for the full text applies, links are provided either to the CD-ROM where these are located, or the relevant web site, or both.

To clear a search field, press the clear button  to the right of the field.

To clear all search fields, press the *Clear all* button.

For more detailed information on searching for references, see the [Simple searches](#) or [Advanced searches](#) sections.

### **Detailed guide**

This section contains detailed information about working with this program. Select one of the items below for more information.

## Working with references

- Searching
- Sorting
- Viewing
- Printing
- Tagging

## Program settings

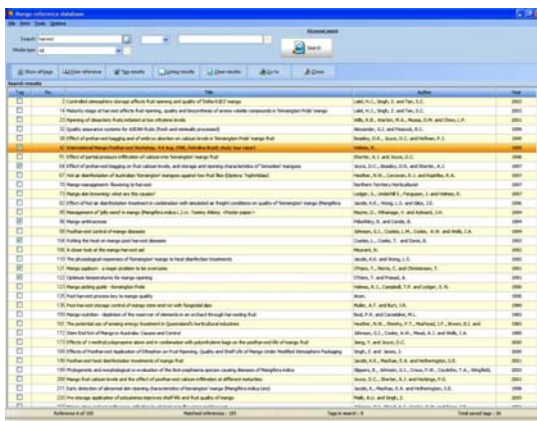
- Changing program settings

## Searching for references

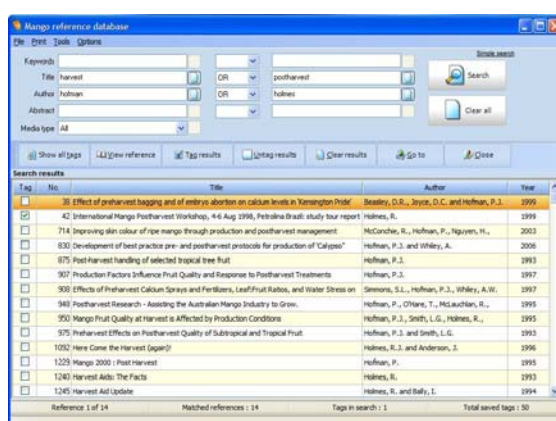
To begin searching for references, press the *Search* button on the tool bar on the main window.

To perform a search, you simply enter words or phrases into one or more of the search boxes provided at the top of the window and then press the *Search* button. All references matching your search criteria will be displayed in the bottom half of the search window.

The program provides both simple and advanced search options. See the [Simple searches](#) or the [Advanced searches](#) section for more information.



Simple search or,



Advanced search



References returned from the search can be tagged for future reference by ticking the *Tag* box beside the relevant reference. You can also view each reference in more detail by either clicking the *View reference* button or by double-clicking the reference itself.

The toolbar above the search results section can be used to do the following:

- Show all tags
- View a reference
- Tag search results
- Untag search results
- Clear search results
- Go to a reference
- Close the search window

## Sorting references

References are listed in the search results window. They can be sorted by reference number, title, author and year published. This feature is useful for grouping large numbers of similar references. By default, references are sorted by ascending reference number, but the order in which search results are displayed can easily be changed.

To sort the current list of references, simply click on the title of the column you wish to sort. For example, if you wish to sort the listed references by author, click the author column with your mouse. To change the sort order from ascending to descending, click the column again. The current column used for sorting references is identified with either a  or a  symbol in the column title to indicate either ascending or descending sort order.

## Viewing references

The reference details window displays bibliographic details for the selected reference, including

- Title
- Authors
- Address
- Source
- Year published
- ISBN / ISSN
- Language
- Media type
- Copyright information
- Abstract\*
- Source document\*

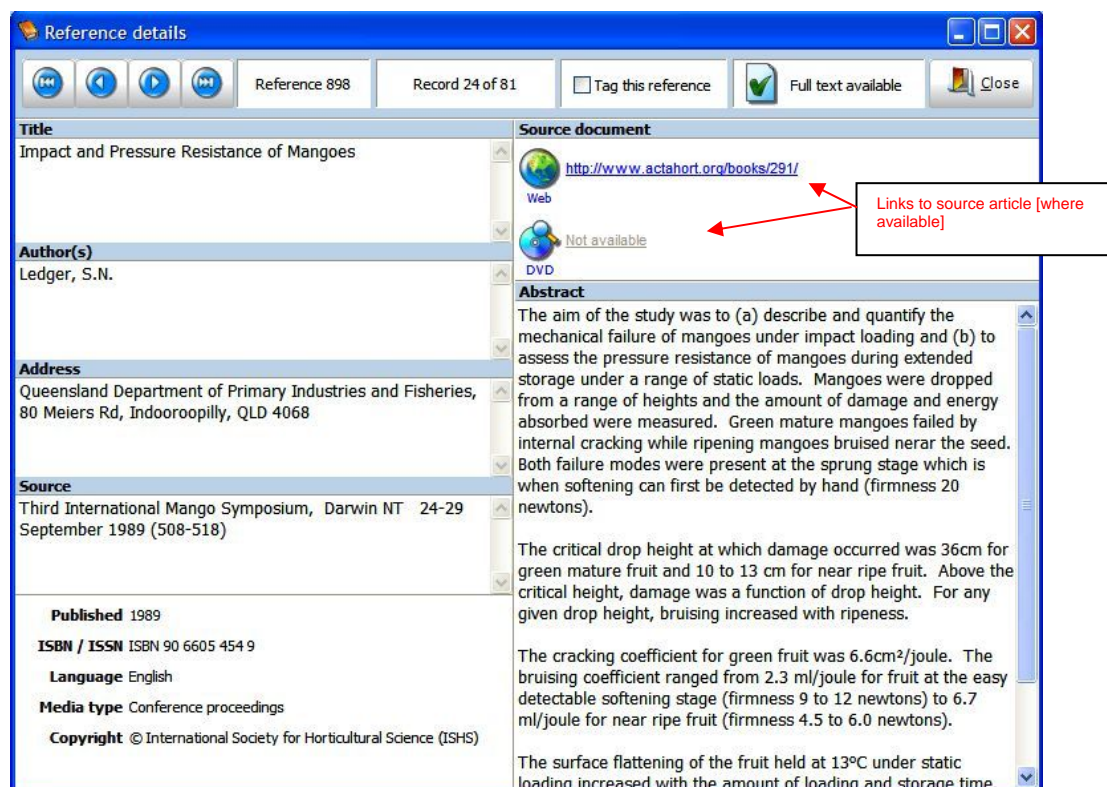
\* where available

All of the references displayed in the search window can be viewed in more detail in this window. Use the scroll buttons at the top of this window to scroll between each of the references. Each reference can also be either be tagged or untagged by ticking or un-ticking the *Tag this reference* box.

Where the full text of an article is available, this will be indicated at the top of the window. In some cases, the source article is available either on the CD-ROM (in Adobe® Portable Document Format) or on a web site. Where these are available, links are also provided in this window (see figure below). In these cases, you can access the source article by clicking on one of these links with your mouse. If a link to the source article is not available, the link will be disabled and will display the words "Not available".

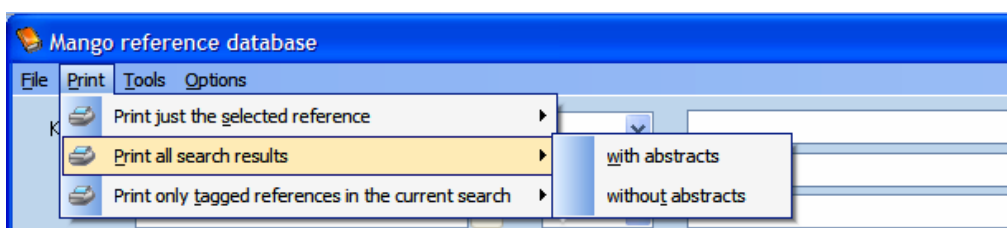
The “connections” feature in the Mango Reference Database instantly allows access to the online source document and from there to all sorts of libraries and databases. A number of these link directly to the full article while others require membership or passwords.

Please note that you must have the Mango Reference Database CD inserted in your computer while running this program to access some source articles. To view the PDF files on the CD, you must also have the Adobe® User software installed on your computer. The Adobe® User software is available from the Adobe® web site, [www.adobe.com](http://www.adobe.com) at no cost.



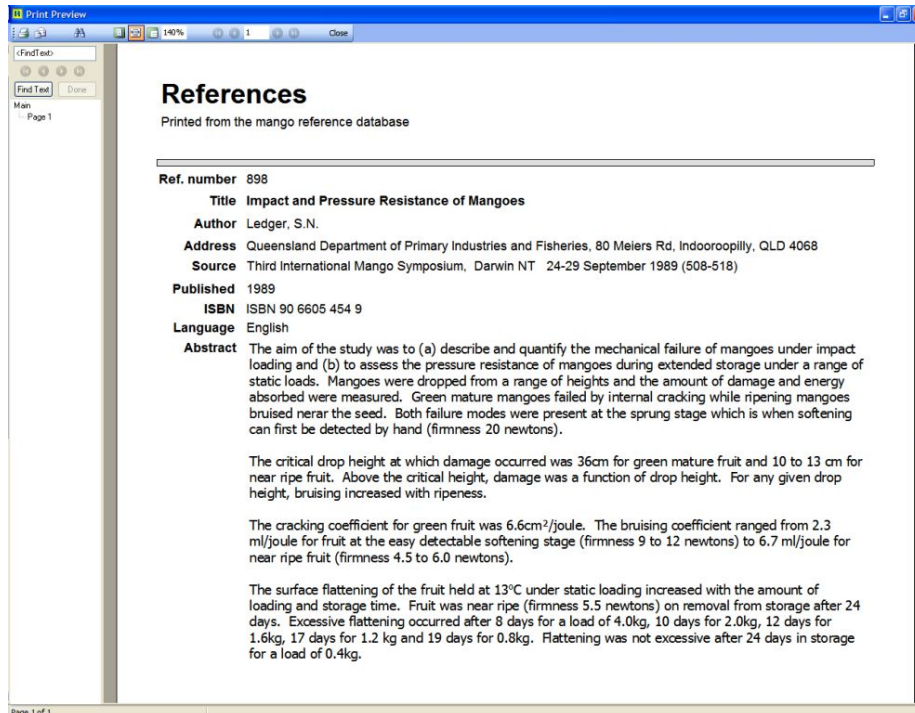
## Printing references

All references can be printed, either with or without corresponding abstracts. To print one or more references, select the Print option in the main window.



Print options include just the single selected reference; all search results (i.e. those references listed in the main window) and only tagged references in the current search (i.e. only those references listed in the main window that are tagged). In each case, references can be printed with or without corresponding abstracts (where they are available).

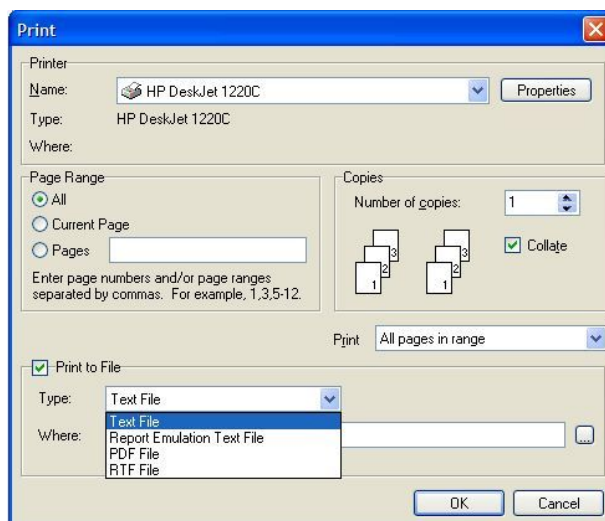
After selecting one of the print options, a preview of the report will be displayed in a preview window, shown below



From this window, you can scroll through each of the pages in the report, search for text within the report and print the report. To search for text in the report simply type the word or phrase in the <Find Text> box and press enter or the Find Text box.

You can also email the report, in filename.pdf by selecting the mail option in the menu bar.

To print or save the report, press the Print button. A window will be displayed from which you can select a printer to send the report to as well as specifying preferences for the printed report such as which pages to print and the number of copies required.



To send the report to the selected printer, press the OK button. You can also redirect the report to a file by selecting the Print to file option in this window. If you choose

this option, you can also specify the format of report required. A number of file options are available but because of the formatting that accompanies the references, only the PDF export filters can handle all of the information properly.

PDF: Portable document format, for use with the Adobe Acrobat user software and ideal for sending via e-mail

To save a report to file, select your preferred file type, and then select a folder / location and name for the report.

### ***Tagging references***

References that match the specified search criteria will be displayed in the lower half of the search window. To keep all of the matched references in the list for future reference, press the *Tag results* button. This will tag all of the search results and add them to your existing list of tagged references. Tagged references remain tagged even when you exit the program.

See the [clearing tags](#) section for more information on removing tags from references. A count of the tagged references in the current search and saved tags from this and other previous searches is shown in the status bar at the bottom of the search window.

### **Showing tagged references**

References can be tagged for future reference by clicking on the Tag box beside the reference, on either the search results window or the reference details window. To see the list of references that you have previously tagged, press the *Show all tags* button.

### **Untagging search results**

Pressing the Untag results button in the search window will un-tag all of the search results displayed in the lower half of the search window. This does not clear any other tagged references from previous searches, only those that were tagged in the current list of references. See the section [clearing tags](#) for more information on removing tags from references.

### **Clearing tags**

To clear all tags that you have previously saved, follow these steps:

Open the search window.

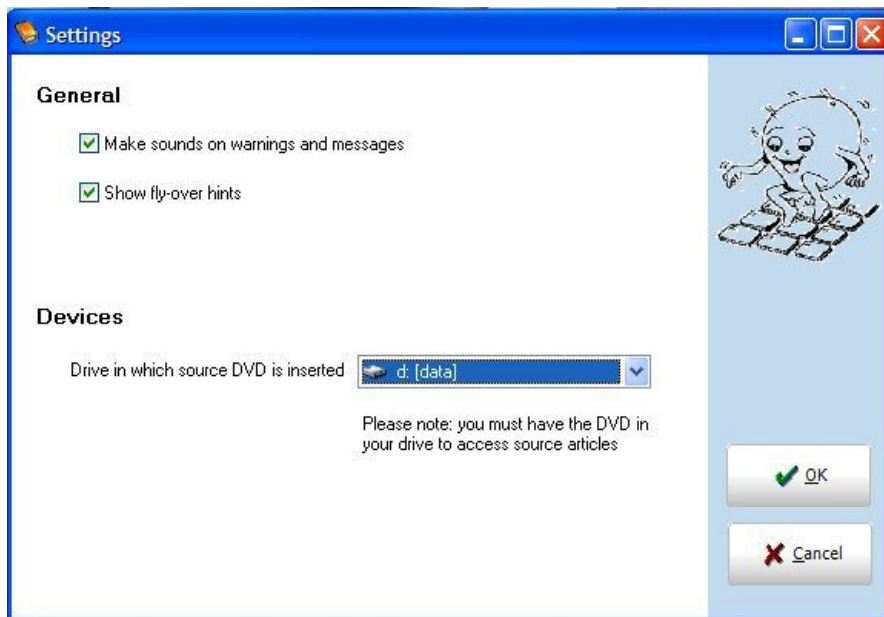
Press the *Show all tags* button. This will display all tagged references.

Press the *Untag results* button. This will clear tags from the references.

### ***Program settings***

To change program settings, press the Settings button on the toolbar on the main window. This will open the program settings window as shown below.





The following settings can be changed:

### **General settings**

These include sounds and fly-over hints. These options can be turned on or off by checking or un-checking the respective boxes.

### **Sounds**

When sounds are turned on, an audible beep will be heard when the program displays an important message or warning.

### **Fly-over hints**

When fly-over hints are turned on, a hint bar appears beneath controls in the program when you pause your mouse pointer over them for a few seconds. A hint bar is also available at the bottom of the search window to display these hints at all times.

### **Devices**

In this section you can set the letter for the CD/DVD drive in which the source CD is inserted. This letter is set automatically when you install the program or insert the CD in your computer, so you should not need to change this setting under normal circumstances.

Press the *OK* button to save any changes you have made to settings and return to the program. If you wish to close the settings window without saving your changes, press the *Cancel* button.