MC95011
Documenting the knowledgebase

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HORTICULTURAL RESEARCH & DEVELOPMENT CORPORATION

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DOCUMENTING THE KNOWLEDGEBASE
FINAL REPORT 1998/99

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INTRODUCTION

This project was initiated to document the knowledgebase of the Australian macadamia industry and make it available via a computer, modem and a Bulletin Board (BBS).

In order for available documents to be accessed in this way, it is necessary to convert 'hard copy' to electronic format. This work of preparing documents and uploading them via the telephone system to the master computer, located in the Australian Macadamia Society (AMS) office in Lismore, will be done in Valla, NSW. When this has been completed, it is envisaged that a new project will be initiated to allow for the knowledgebase on the BBS to be printed onto compact disk(s) in the form of a Macadamia Encyclopaedia.

Training sessions will also be facilitated that will show prospective and current users how to access the information and how this information can be used to enhance their production efficiency. By continuing to make more knowledge available electronically, in addition to traditional methods, access to and adoption of research results will be enhanced. The industry knowledgebase will progressively become available to all of the industry via home/office computers, allowing a much more time and cost efficient method of information dissemination.

SUMMARY REPORT

AMS *News Bulletin* Conversion to Electronic Format
The aim was to complete the conversion of all previous issues of the *News Bulletin* to electronic format by 1 February 1998. However, this has not been achieved:

1. The process involves scanning the original hard copy issues of the *News Bulletin*, using a flatbed scanner and subsequent OCR and graphics software, and proof reading the resultant files. The original print quality of some of the earlier issues is extremely poor and, therefore, the process has taken much longer than anticipated.

2. The original intention was to give some priority to the conversion of the *News Bulletin* to electronic format because of its major role as the information dissemination vehicle in the Australian macadamia industry since the first years of establishment. However, there are many more current documents that are now seen to have greater priority over the older material and so a choice has been made to try to process both. This has resulted in a slower rate of progress on the *News Bulletin* than was anticipated.

The work is continuing and will be completed without HRDC or Industry Levy assistance.

The following issues have been converted and uploaded to the Macadamia Industry Bulletin Board (BBS) and are available for use by AMS members:

1974	July
1975	October
1976	January, June, November
1977	March, June, October
1978	January. March, April, May, September, December
1979	January, February, June, September
1981	March, August
1983	January, August
1985	March
1986	January, September

1987	March, September
1988	July, September
1989	March, July, September, November
1990	January, July, September, November
1991	January. March, May, July, September, November
1992	January, March, May, July, September, November
1993	January, March, May, July, September, November
1994	January, March, May, July, September, November
1995	January, March, May, July, September, November
1996	January, March, May. July, September, November
1997	January, March, May, July, September, November, October Conference issue, 1974-1996 Index
1998	January, March, May, July, September, November, October Conference issue
1999	January, March, May

Conversion of Other Relevant Material to Electronic Format

In addition to the *News Bulletin* files listed above (91 separate files), there are over 800 other files of research reports, technical papers, articles, letters and associated graphics files available for the use of members of the Australian macadamia industry.

Permission has been obtained from the Hawaiian, Californian and South African industries for the use of their material (mainly the published Annual Conference Proceedings). That material is being scanned, verified and uploaded as it becomes available and the back issues are also being checked for relevant articles for inclusion.

Training

Training sessions were conducted in the early stages of the project but more recently there has been little opportunity for the presentation and promotion of this most valuable tool.

New users are still signing on but many of those who first used the system in the early stages (before there was a significant body of information available) have not continued.

Continued reinforcement and promotion presentations are needed to maintain the use of the BBS

TECHNICAL REPORT

Hardware

The computer controlling the BBS is located in the AMS office and is connected to one modem. Access is by two telephone lines - one for calls from the local area and one (freecall) number for those outside the NSW northern rivers region. Thus, there is no cost disadvantage for those living in areas that would otherwise require an expensive STD call.

Time on the system is limited to two hours per day so that no one user can monopolise the BBS.

A system that allows more than one user at a time will be needed as usage grows.

Software

The WIN-BBS system currently in use is a windows-based system chosen in response to request for that style of presentation. It has some limitations on the previous non-Windows system:

1. The inability to edit description detail or file location from a distance and the inability to monitor usage (which files are used how often and who is using what) creates some difficulties. The AMS office staff are required to repeat some tasks that previously were done in one operation - an effective doubling of the time spent - and it is not possible to view document usage from the remote computer and so prioritise document selection based on that usage.

2. Some features of the system are not used and the visible buttons for these features are somewhat distracting - Ads, Notices, Doors (we have been unable to determine what this feature is for!), Mailbox and Statistics are little used and probably of little relevance to most users (see Figure 1).
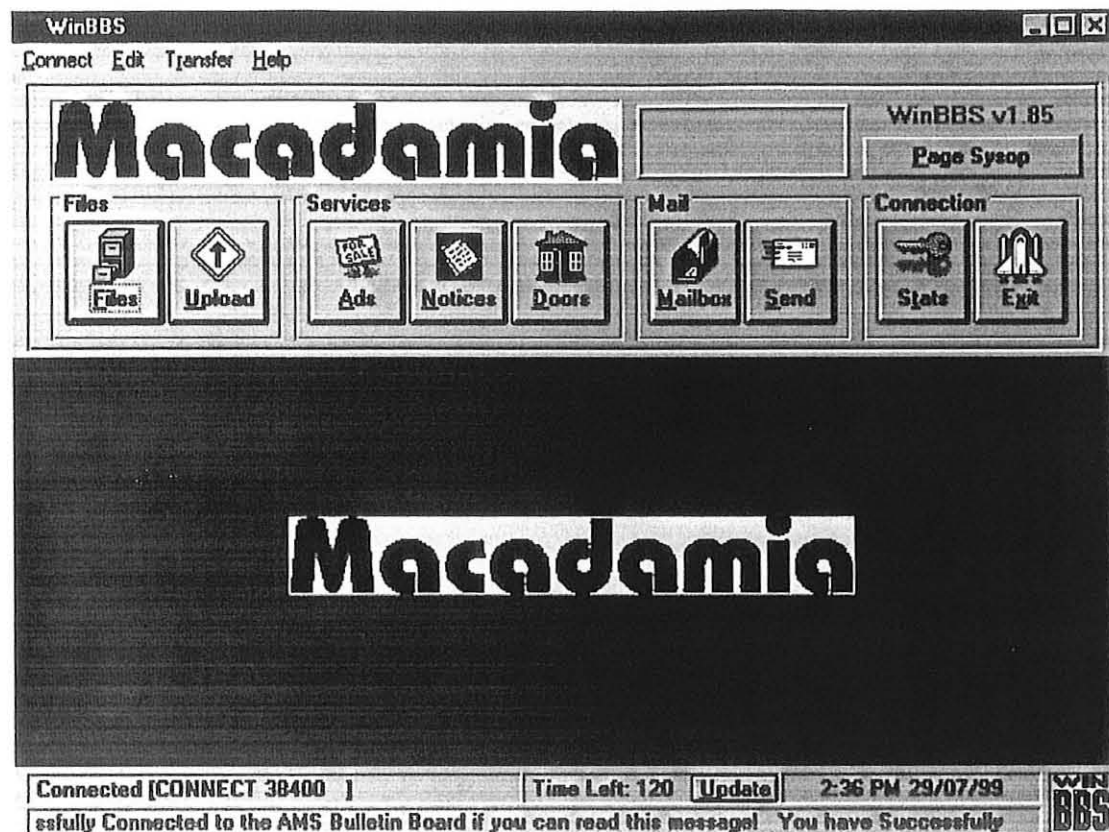
Figure 1. Initial screen

The main feature we are using - the principle reason for the establishment of the BBS - is the "Files" button. This is the feature which facilitates searching for information, locating relevant documents and downloading them for use. Clicking this button displays a split screen with the file "libraries" on the left and description space on the right. Further selections include Display as text file, All files, Tag for download, Search, and New file search (see Figure 2).
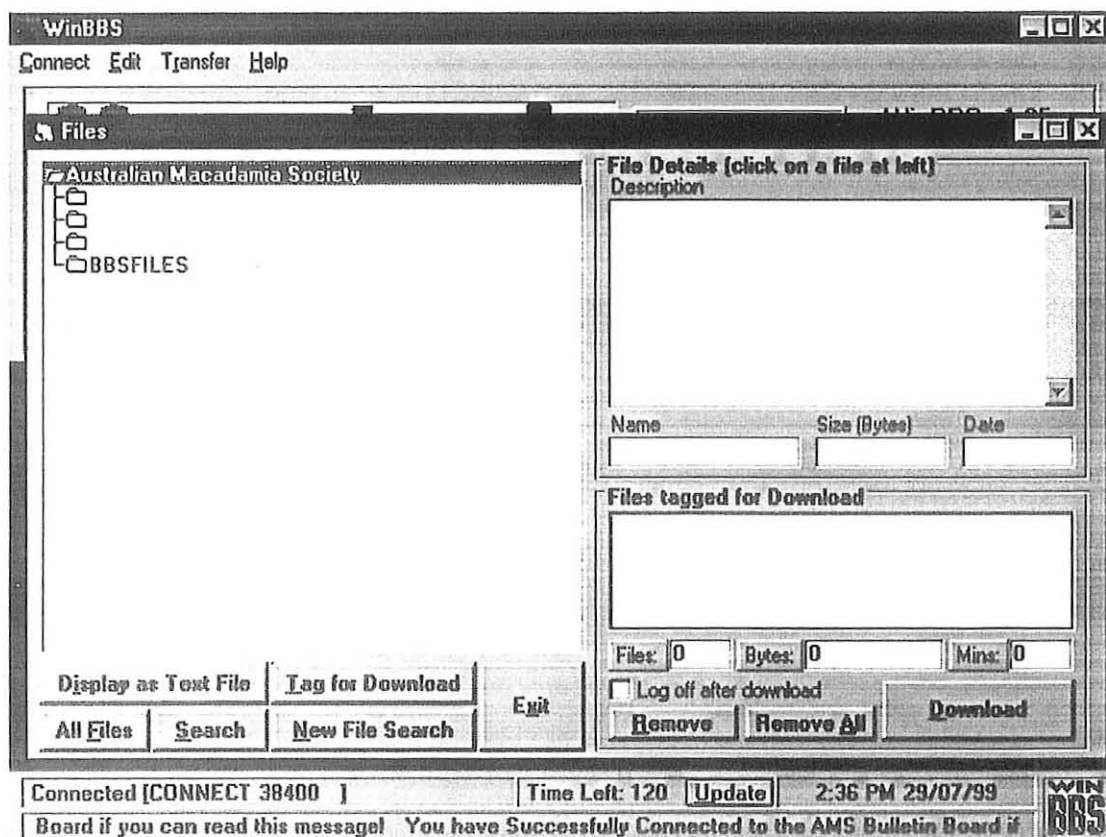

Figure 2. Files screen

1. **Display as text file** allows the reading of text files (only) on screen. There are, in fact, few text only files on the system for two main reasons:
   a) the conversion to text files from the currently used Word for Windows files results in a considerable loss of format, particularly in tables, and the inevitable extra time in re-doing those elements. Thus, a decision was made to concentrate on the original Word documents and return to the text conversion later if it was still felt to be necessary, and
   b) reading the text version on screen ties up the system and so users are encouraged to download the file they wish to read and view it on their own computer off-line.

2. **All files** displays the directory structure and lists the files in each directory. While this can be used to select files for downloading, the considerable number of documents now available mean that this is a rather tedious process and selection by keyword is recommended for more specific search results (see **Search** below).

3. **Tag for download** is used to select highlighted files for downloading to the user's computer. Actual downloading is then achieved by clicking the Download Now button - a two step process.

4. **Search** is the key to the information retrieval system. Clicking this button allows the typing in of a search keyword and the system then lists all the files available with that keyword in the filename and/or description. Thus, if a filename is known it can be used, an author or title or date can be retrieved or a more general search by subject word will result in a list of relevant documents.

   Results are viewed as a list of files on the left and selecting any of those files will display a brief description on the right half of the screen. Descriptions are designed to allow selection of useful files for downloading and include the relevant keywords, abstracts, date, etc. to assist in evaluating each file (see Figure 3).
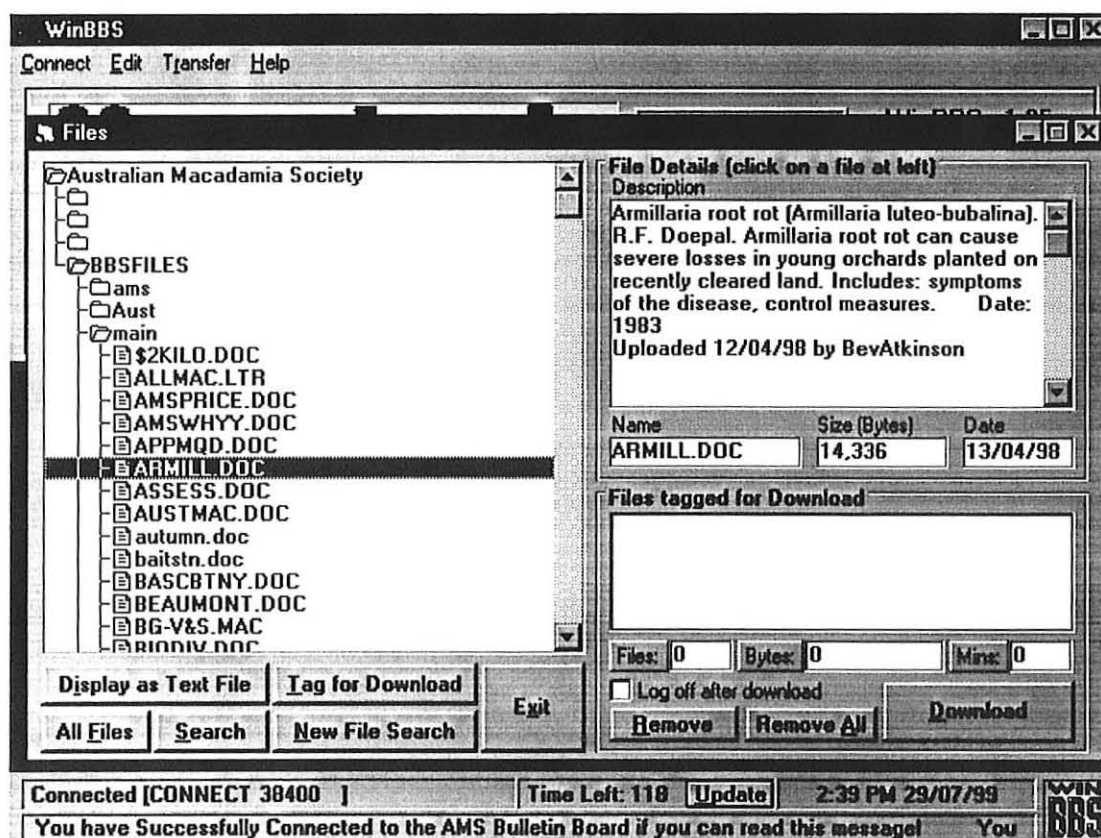

Figure 3. Results of search screen

Also displayed is the file size and, if tagged for downloading, the download time.

5. **New file search** will display the files that have been added to the system since the user was last connected - this means that regular users do not have to initiate a new search each time they connect but can quickly scan the new files for relevant documents

File Libraries

The directory structure (or "libraries") controls access to the BBS. Presently, the libraries are: Executive, R&D, AMS, NewsBulletin, Research, Workshop 1, Workshop 2, Aust, Statistics, Main, Utilities, Uploads. Access is determined by a code number, each allowing access to those directories below them in the hierarchy.

1. **Executive** directory includes AMS Board documents, discussion papers, draft minutes of Board meetings, etc. - for AMS Board use and viewing only.
2. **R&D** is similar for the use of the R&D Committee - discussion papers, minutes of R&D committee meetings, research funding and application timing, etc.
3. **NewsBulletin** contains all the available AMS *News Bulletin* files. For AMS members only.
4. **AMS** is little used but is designed to include AMS documents such as minutes of general and annual general meetings, financial reports, the Constitution, list of office-bearers, etc. It could also, perhaps, include a list of current financial members. For AMS members only.
5. **Research** includes all the Australian industry only research reports and other Australian funded documents from other agencies, including the Strategic Plan.
6. **Workshop 1** and **Workshop 2** contain the papers presented to the Australian Macadamia Research Workshops.
7. **Aust** contains files of Australian origin but not the results of industry-funded research.
8. **Statistics** includes a variety of statistical documents including the Australian Bureau of Statistics on macadamia imports and exports.
9. **Main** is the library for general use. It contains general interest and promotional material, lighter weight articles, and material from the macadamia industry in Hawaii, California and South Africa.
10. **Utilities** includes generally helpful software, such as the file compression software needed to read the ARJ-compressed files used to shorten download time.
11. **Uploads** is the directory used by the system to maintain the "new file" listing.

Rationalisation of this directory structure is recommended.

Current Contents

Most of the previous issues of the AMS *News Bulletin* have now been scanned and added to the BBS. Those issues still remaining include the older ones that are of very poor quality and therefore take a considerable amount of time in copying and checking to ensure accuracy. In addition, the content is, perhaps, of less direct relevance and urgency and while it is of interest it has been assigned a lower priority.

Research reports are added as they become available. The macadamia industry Industry Development Officer has completed a check of all the Final Reports that we should have and we are following up on obtaining those that are missing. These are being treated as priority additions to the BBS.

We have permission from the Hawaiians, the Californians and the South Africans, QDPI and NSW Agriculture (not saleable publications) to place their documents on the BBS. All such documents contain an acknowledgment of the original source.

All documents are presently in Word for Windows 95 ver. 7.0. There has been some difficulty with users whose word processors are unable to read this format. However, we have been unable to determine a common format (even HTML is not known or used by many) and plain text does not allow the critical formatting that is necessary in some documents, especially the research reports. Thus the use of this format has continued so that, at least, all files on the BBS are in the same format so that later conversion to another format, if required, will be as painless as possible.

THE FUTURE

Up until now, the main aim has been to convert as much as possible of the available material into electronic format. Now that this task is approaching its completion, it is time to examine the options for future directions. Unless the electronic format is used to its full advantage, it seems to be rather a waste of time and money to only end up with a digital version of the hard copy. The use of hyperlinks, graphics displays, even sound and animation are all possible with the new technologies and our thinking should not be limited to the familiar only.

Various options have been discussed, chief among these being the use of the Internet to make these documents available - providing a satisfactory system of access limitations could be guaranteed. This would provide access to the material in a format which some, at least, users are already familiar but could prove to be expensive and complex.

The use of an online internet type facility will probably require the upgrading of our present number of phone lines to allow access by more than one user at a time - four phone lines and a four-in-one modem box would seem to be adequate.

Also, the publication of a CD-ROM has been proposed as a way of making the information available in a block to the user at home - somewhat similar to a macadamia "Encyclopaedia Britannica". This option is certainly a cost-effective way of disseminating the information we have but it is suggested that it not be undertaken until the documenting the

knowledgebase is substantially complete. In the meantime, inquiries could be made to ascertain costs, formats, procedures and processes and a review of other similar products be undertaken.

Conclusion

While progress on this project has not been as rapid as had been anticipated, work is continuing and there is now a substantial number of documents available for on-line search and retrieval by members of the Australian macadamia industry. The work is continuing.