

Advancing AVOMAN

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“ADVANCING AVOMAN”

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AV01006

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The purpose of this report is to summarise the work and outcomes of this project. However it should be noted that much of the work undertaken in this project is contained within the updates of the AVOMAN and AVOINFO software that were the major outputs.

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Media summary

The main objectives of this project were to:

- Update the AVOMAN avocado orchard management software
- Update the AVOINFO avocado reference database software, and
- Conduct regional productivity group meetings/farm walks with growers

This project built on two previous projects undertaken between 1993 and 1998 which developed the first commercial versions of the AVOMAN and AVOINFO software and formed the Regional Productivity Groups.

The updating of the AVOMAN software was undertaken to bring the recommended orchard management practices and other agronomic information up to date and to enhance the capabilities and usability of the software for avocado growers. Input from software users, the AVOMAN industry planning committee, and from other scientists and extension staff working on avocado were an essential part of the updating process.

The main advances in the AVOMAN program's capabilities were:

- Updating of the customised agronomic recommendations, and updating the comprehensive illustrated information on growing the crop in the Help files.
- Introduction of "browsers" which enable growers to quickly and efficiently review their records, produce many different reports, charts and graphs, and to make AVOMAN more amenable for use in comparative analysis/benchmarking.
- Development of the 'Production' section of the software into harvest, pack and consign sections with enhanced reviewing and reporting capabilities together with the ability to trace fruit.
- The ability for the individual user to customise more of the program to suit their needs.
- Development of the software's utilities such as sharing files on a network, archiving data, and backing up automatically.

The AVOINFO avocado reference database has been updated to include 1600 new references bringing to total number of references included to 5800. The program also has a new interface with greater functionality for the user.

Hands-on AVOMAN software training sessions were held in all major production regions across the country in both 2002 and 2003. Farm walks and some benchmarking events were held with different groups across Queensland and NSW.

One of the successes of the AVOMAN projects has been to draw together the researchers and extension staff from around Australia and to incorporate their expertise and knowledge into the AVOMAN software.

Introduction

This project built on a previous project undertaken between 1993 and 1998 which developed the first commercial versions of the AVOMAN and AVOINFO software and formed the Regional Productivity Groups. Owing to the advances in avocado growing technology, the changing needs of producers and the significant amount of literature published on avocado it was important that the two software programs were brought up to date and their features enhanced in order to keep them relevant to the significant number of users.

Technology transfer and methodology/activities

AVOMAN software update

To prioritise the feedback from software users an industry focus group consisting of four growers and the avocado industry manager was formed.

The AVOMAN project team, with feedback gathered during the training sessions and in consultation with members of the AVOMAN industry planning committee and key AVOMAN software users, undertook to act on high priority feedback and combine it into a single major update. Many significant enhancements were made to ensure that it continues to meet the needs and requirements of growers in the Australia avocado industry. This major update was completed and released to growers in 2003.

As well as updating the agronomic aspects of the software, a major emphasis was placed on simplifying the way jobs are recorded and making growers' records more accessible to them.

The updated version, known as AVOMAN version 2, has a stronger focus on recording and reporting, with more transparent and more powerful access to all important farm records. The scope of information that can be recorded within the program has been significantly increased in response to the statutory demands placed on growers and feedback provided by the users.

A number of new facilities, such as bi-directional paddock to plate fruit traceability, water management charts, monthly crop calendars, scheduled reminders and root phosphonate monitoring were added to the already extensive list of program features. To better suit a broader range of management styles and business sizes, all major aspects of the program can be customised, including employees, customers, machinery, chemicals, water sources, target pests, varieties, locations, fruit grades, pack styles, farm operation properties, report headers & logos and even notes templates. All tabular reports can now be either printed or saved in a range of popular formats for transfer to other users or programs.

While the function of the AVOMAN program was substantially increased, greater emphasis was also placed on making it easier to use. This was achieved through a number of features, including a new Explorer style menu

tree, simplified data entry windows and filterable data browsers which provide rapid, powerful and transparent access to all stored records. Many existing reports were streamlined and simplified and many new reports were added including water management, irrigation, chemical and fertiliser summaries and comparative block costs.

Recent avocado research and development was incorporated into existing agronomic recommendations in the program to ensure they remain relevant to industry. A new recommendation was also created for the effective use of the growth regulant Sunny[®]. The recommendations matrix was expanded to show a 12-week time frame and the process of actioning recommendations as jobs, including appropriate chemical and rate selection was further simplified.

The already extensive library of crop information within AVOMAN was updated and expanded through collaboration with leading avocado research and extension staff. This section, which now includes many full colour pictures and drawings, is accessible from directly within AVOMAN via a new menu tree.

All utilities associated with the AVOMAN program were improved and integrated directly into the AVOMAN program. These include the backup system with optional automatic backups, network file sharing support, a data archiver and a data repairer.

Filters were developed to automatically translate growers' records from the previous version of AVOMAN into the latest version. This translation process includes interrogation of the chemicals database, deletion of products that are no longer registered and addition of new registered products. A new user's manual and integrated program help system was also developed to accompany the latest version.

Since the initial release of AVOMAN 2 minor changes and adjustments have been made to the program and released via a total of 9 'patches'.

AVOINFO software update

Version 2 of the AVOINFO avocado reference database was completed and released in 2005. This was the first update since it was first released in 1998.

AVOINFO 2 contains 1600 new references sourced as follows:

World Avocado Congress 1999 (Mexico)	144(A)
World Avocado Congress 2003 (Spain)	206(A)
South African Avocado Growers' Association Yearbooks 1998-2003	118(A)
New Zealand Annual Research Reports 2001-2003	45(F)
California Avocado Society Yearbooks 1993 – 2001	48(A & F)
California Brainstorming '99 conference	45(F)
Australia/New Zealand conference 2001 (Bundaberg)	24(F)
Talking Avocados 1998-2004	37(F)
HRDC/HAL projects final reports	32(A)
References from "The Avocado: Botany, Production & Uses" (CABI)	720(B)
Miscellaneous references sourced from the World Wide Web	315(A & B)

- (A) with abstracts
- (B) bibliographic details only
- (F) with full papers

Inclusion of the abstract or full paper was dependent on obtaining copyright release. Copyright release was able to be obtained on some, but not all, literature sourced from the World Wide Web.

This update brings the total number of references in AVOINFO up to 5800, each of which has been allocated keywords from an expanded set of keywords numbering over 600. A greater proportion of the references also have colour figures.

The program has a new interface with greater functionality for the user. One of these key new features is how the results of a search are presented for easy viewing, sorting, selection, tagging and printing. In addition, the abstract and the print preview are now equipped with a word search feature and reports can be saved and sent electronically.

The AVOINFO 2 CD was released in 2004 and distributed to owners of the 1998 version and made available for sale to others.

Hands-on AVOMAN training sessions

Formal training sessions were conducted in all major production areas in 2002 during development in order to introduce growers to changes in the software and importantly to gather feedback on the changes and seek further input:

2002

LOCATION	DATE IN 2002	SESSION	ATTENDEES
Mareeba	6 August	Half day for beginners	6
"	8 August	Full day for all	9
Mildura	21 August	Full day for all	5
Loxton	22 August	Full day for all	8
Coffs Harbour	17 September	Half day for beginners	7
" "	18 September	Full day for all	12
West Moreton	9 October	Half day for beginners	4
" "	10 October	Full day for all	7
Nambour 1	15 October	Half day for beginners	6
"	16 October	Full day for all	9
Nambour 2	17 October	Full day for all	8
Manjimup, WA	23 October	Half day for beginners	10
" "	24 October	Full day for all	20
Bundaberg	30 October	Full day for all	11
TOTAL			122 growers

A total of 89 different AVOMAN users attended the sessions in 2002. In addition, farm visits were made to 6 orchards where one-to-one technical support had been requested.

In 2003 advantage was taken during the visits to growing regions for the AAL "Road Show" field days to conduct further formal training sessions whilst in the area. The only area not covered was the Riverina/Sunraysia due to time constraints of the field day program:

2003

LOCATION	DATE IN 2003	SESSION	ATTENDEES
Mareeba	4 July	Full day for all	8
Bundaberg	25 July	Full day for all	7
Gatton	30 July	Full day for all	8
Alstonville	12 August	Full day for all	11
Macksville	13 August	Full day for all	9
Nambour	8 Sept	Full day for all	8
Nambour	9 Sept	Full day for all	14
Bunbury	28 November	Full day for all	12
TOTAL			77 growers

Numerous individual demonstrations and short training sessions have also been conducted at the Nambour office since.

Regional productivity group meetings

Regional productivity Group workshops and/or farm walks were held in various locations to address production issues, provide growers with the latest research findings and to encourage greater adoption and more effective use of the AVOMAN software and the AVOINFO database. These events were in addition to the software training sessions already mentioned.

The following workshops/farm walks/AVOMAN training sessions were held:

2002

With the assistance of John Leonardi, five farm walks were held which focussed on the correct use of the growth regulant "Sunny":

- Bundaberg
- Nambour
- West Moreton
- Alstonville
- Coffs Harbour.

These were conducted during the district visits to conduct AVOMAN training.

2004

Green Pigeon, NNSW (26/11/04). Topics covered - description and demonstration of the AVOMAN orchard management software, Phytophthora root rot control, farm walk. Attendance 15. Presenters were Simon Newett and John Dirou (NSW DPI extension officer).

2005

Mareeba, North Queensland (25/1/05). Topics covered – preliminary meeting to discuss possibility of benchmarking with Atherton Tablelands avocado growers. Attendance 7. Presenters were Simon Newett and invited presenter Paul O'Hare (DPI&F extension officer).

Mareeba, North Queensland (7/7/05). Presentation of yield and quality data and demonstration of avocado benchmarking. Attendance 20. Presenter Simon Newett.

Mareeba, North Queensland (13/10/05). First full benchmarking meeting covering yield and fruit quality. Attendance 8. Presenters Simon Newett, Pat O'Farrell and Paul O'Hare (DPI&F extension officers).

Mareeba, North Queensland (14/10/05). Hands-on AVOMAN software training, attendance 10. Presenters Simon Newett and Pat O'Farrell.

Gosford area, NSW (a.m. 21/11/05), AVOMAN demonstration. Attendance 3. Simon Newett.

Gosford area, NSW (p.m. 21/11/05). Topics covered – highlights from the recent Australia/New Zealand avocado conference, anthracnose and its control, spotting bug and the latest research on control methods, discussion of proposed new extension project, farm walk. Presenters Simon Newett and Geoff Waite (DPI&F entomologist). Attendance 17.

Comboyne, Central Coast, NSW (22/11/05). Topics covered – highlights from the recent Australia/New Zealand avocado conference, anthracnose and its control, spotting bug and the latest research on control methods, discussion of proposed new extension project, farm walk. Presenters Simon Newett and Geoff Waite (DPI&F entomologist). Attendance 19.

Bundaberg, Queensland (25/11/05). Topics covered – highlights from the recent Australia/NZ avocado conference, introduction and background of new DPI&F horticulturist Danielle Le Lagadec, update on calcium/nitrogen nutrition trials, discussion of proposed new extension project, farm walk. Presenters Simon Newett, Danielle Le Lagadec, Peter Hofman (DPI&F horticulturists). Attendance 25.

Toowoomba, Queensland (2/12/05). Topics covered - discussion of proposed new extension project, the need for better communication between growers for marketing, highlights from the recent Australia/New Zealand avocado conference, update on root rot control, update on canopy management and a farm walk. Presenters were Simon Newett, John Leonardi (AAL), Michael Flynn and Daryl Boardman (growers), Graeme Thomas (grower and horticultural consultant). Attendance 44.

Industry “Road show” field days in 2003

The project leader presented details of the new version to Australian avocado growers at each of the seven industry field days conducted around the country between July and November 2003:

- Atherton Tablelands
- Bundaberg
- West Moreton
- NNSW
- Central Coast NSW
- South Australia
- West Australia

These industry field days attracted the majority of growers in Australia.

Over the same period whilst in these locations (except South Australia) the AVOMAN team also conducted hands-on software training (see above under “Hands-on training sessions”).

Intellectual property

The names “AVOMAN” and “AVOINFO” have both been trademarked. This will ensure that these names can be continued to be used.

Other project related activities

Australia/New Zealand avocado conference 2005

Simon Newett travelled to New Zealand on Monday 19 September, attended the three day conference from 20 to 22 September and returned to Australia on Friday 23 September. He co-authored a paper that was presented at the conference on climate change and its possible effects on avocado entitled "Climate change – Risks and Opportunities for the Avocado Industry".

AVOINFO was promoted at the conference in Tauranga, New Zealand by means of brochures and a poster.

Mr Newett attended all 42 presentations and the field trip and was updated on the latest developments in Australia, New Zealand, South Africa, California and Israel. He networked with and renewed contacts with other avocado R, D & E staff from these countries. He wrote up 25 pages of notes from the conference and has received a copy of the conference CD containing all the papers and MS PowerPoint presentations. He took the opportunity to discuss with Australian growers ideas for a new avocado extension project in Australia and has since submitted this for funding.

On his return to Australia Mr Newett prepared a 45 minute MS PowerPoint presentation on the highlights from the conference and presented it at 4 grower meetings in November which were held at Peats Ridge (near Gosford, NSW), Comboyne (near Port Macquarie, NSW), Bundaberg (Queensland) and Toowoomba (Queensland). The total number of growers in attendance was 105.

AVOMAN support service

Since AVOMAN Version 2 was released in 2003 and training around the country was completed, the AVOMAN team at Nambour has logged 47 hours of support calls with AVOMAN software users via email and phone. In addition to these hours and the training listed above, individual demonstrations and tuition have also been given to growers.

AVOMAN minor updates ('patches')

Nine software "patches" have been released since Version 2 was released. These "patches" included enhancements to reports and fixes to minor bugs. These patches can be downloaded from the AVOMAN website.

Discussion

Number of copies of software distributed:
AVOMAN - 176
AVOINFO – 101, 8 of which have gone overseas.

The uptake of AVOMAN Version 2 has been encouraging and continues slowly but steadily. The 'Shepard Australia' growers have formed a benchmarking group and have chosen AVOMAN as the record keeping system that must be used to facilitate their benchmarking activities. Other groups will be encouraged to do the same.

Fewer copies of AVOINFO are being requested and the benefits of updating the AVOINFO reference database in the future should be carefully examined. The existence of the free website developed in California, www.avocadosource.com, has in some respects superseded AVOINFO, however AVOINFO is still preferred by many users as a more effective way of seeking information because of its powerful search facility. Avocadosource.com is a free, web based database which has been developed by the Reuben Hofshi Foundation in California. This website contains in most instances the full papers of dedicated avocado publications whereas we have in many of these cases not been able to secure copyright release further than the abstract. They also provide other resources such as a picture library.

AVOINFO has more references of historical literature and from multi-commodity journals than avocadosource.com and AVOINFO also has a much more user-friendly search engine but this has to be weighed against free access to full papers and other resources (e.g. a picture library) that avocadosource.com offers. Several users of AVOINFO have reported that they use AVOINFO to locate information but once this is known then look up the full paper in avocadosource.com.

One of the notable successes of the AVOMAN projects has been to draw together the researchers and extension staff from around Australia and to incorporate their expertise and knowledge into the AVOMAN software.

Recommendations

- AVOMAN software users continue to have access to technical support and future minor updates of the AVOMAN software are considered favourably especially to support Regional Productivity Group activities such as benchmarking.
- Another update of the AVOINFO software is probably unlikely given the existence of a free, web based avocado database that contains full papers.
- Regional productivity groups should continue to be serviced and supported by the team of avocado researchers and extension staff that has worked together well in the past. There is a real need for this and the use of the AVOMAN software works in well with this approach to improve productivity and fruit quality in the Australian avocado industry.

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The AVOMAN industry planning committee members who helped direct and prioritise the areas for updating.

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