



# Auscitrus

**Australian Citrus Propagation Association  
Incorporated**

**ANNUAL REPORT**

**2014**

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# AUSCITRUS ANNUAL REPORT 2014

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## CHAIRMAN'S REPORT



It is pleasing to report, as a grower, a much better year for citrus returns, with much more interest for our exports; the main interest coming from China and Japan.

This will, I am sure, create more interest from our nurseries for seed and bud wood. We notice this year a better final outcome, which has been helped by more interest in the replanting of citrus by many growers.

Growers have expressed their concerns on a number of occasions about the size of trees that a few of the nurseries have been supplying; trees are unable to stand without support, expected to go through their first summer with hardly any first year growth. As a grower I have to agree with them, I have noticed over the last 10 years or so that the quality of these trees has declined, they lack growth, both top and bottom. If we compare our nursery trees with trees from overseas nurseries we can see that at times we produce a very poor tree

Tim and I have met recently with several Federal politicians in both the senate and House of Representatives for the Sunraysia and Riverland. We have been seeking financial support for a larger screen house. All have seemed supportive in what we are trying to do and seem keen to help.

We will be sending information to Government representatives in all citrus growing areas when the final plans are made. Citrus Australia have offered to use their Government contacts in support.

Pat Barkley has agreed to help us with bio security and related matters. Pat has for some years represented us on Peppic, we thank her for her interest and continued support of Auscitrus.

Finally Auscitrus again thank our staff, at Dareton and EMAI, for their interest and dedication.

Special thanks to Tim, for your management and guidance over the last twelve months.

Mike Arnold A.F.S.M.

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## MANAGER'S REPORT

After a number of years of low sales of budwood and subsequent trading losses, 2013/14 has seen a turnaround in sales and so the seed and budwood operations have returned a profit. There is a positive feeling generally from Auscitrus's nursery customers, with another strong sales year forecast for budwood. It is a refreshing change from the slump of recent years, and is a good early indication that the citrus industry is strengthening.

Auscitrus will be undergoing some significant changes in future years, with the move to budwood production under insect screened conditions being an essential strategy to protect the budwood scheme from any future incursion of HLB and its psyllid vector. This will pose challenges in production systems and profitability, but will also bring us into line with budwood schemes in countries such as South Africa, California and Florida who are already dealing with HLB/ACP.

I attended the International Society of Citrus Nurserymen congress in Mexico in February, with pre and post-congress tours including nursery visits in both Florida and California. These nurseries have recently undergone the transition to all tree production under screen due to the presence of ACP in their regions. Being able to visit these nurseries and talk to the operators was invaluable, and many ideas will be implemented in our new structures. A visit to the South African budwood scheme is scheduled for August 2014 to gain knowledge about their operations before we progress with final planning. Both the USA/Mexico trip and the upcoming South African trip are funded through Voluntary Contribution projects with Horticulture Australia Ltd.



**Figure 1 - A positive pressure insect proof greenhouse at University of California, Riverside Ca.**

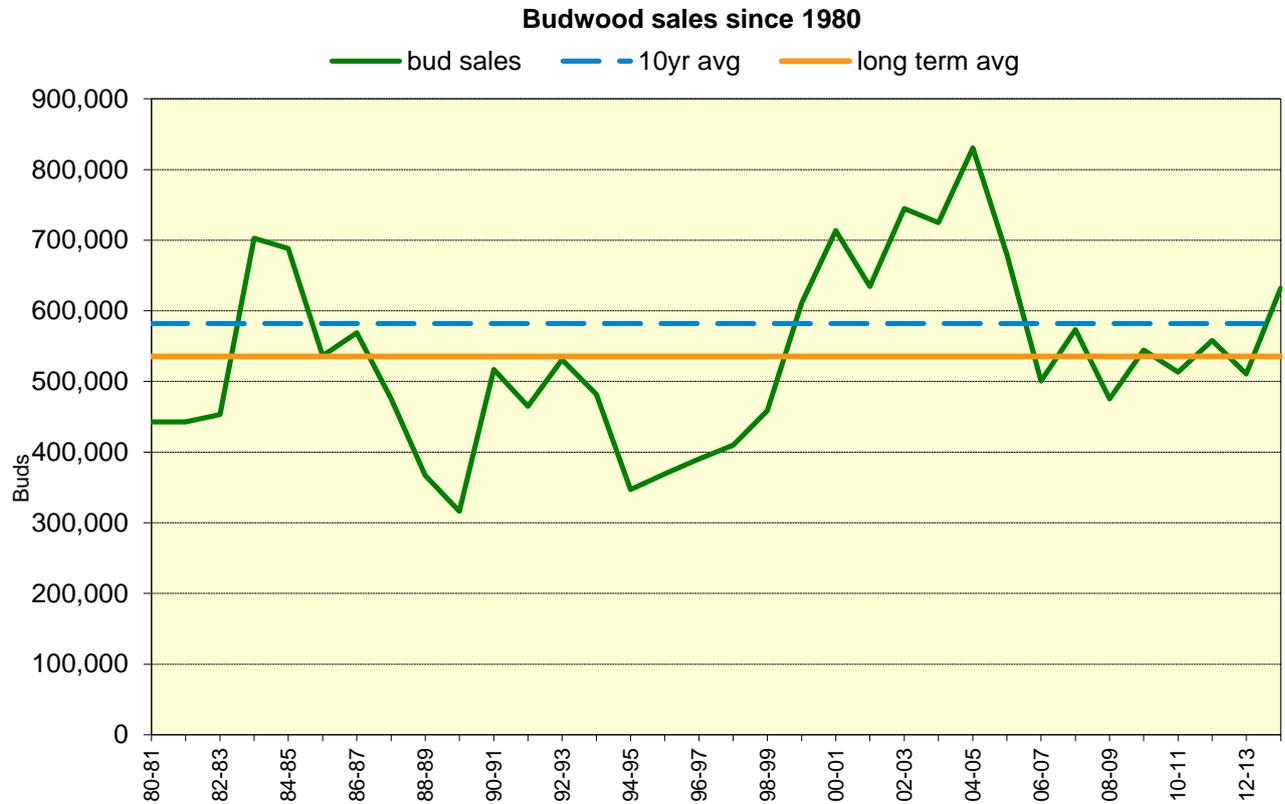
The establishment of field budwood trees at the River Road property is still progressing though, with planting practically complete. Buds are being harvested from the trees that have fruited and been shown true to type. Almost all of the seed trees and a large percentage of the budwood trees have been removed from the Research Station plantings as they are no longer required.

Tim Herrmann  
Auscitrus Manager

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## BUD SALES

Total bud sales for 2013/14 came to 557,016 buds, up from 457,313 in 2012/13. An additional 75,232 buds of private varieties were sold, up from 53,460 buds in 2012/13. Total buds sales were therefore at 632,248, just above the 10 year rolling average.



The top ten selling varieties for 2013/14 were:

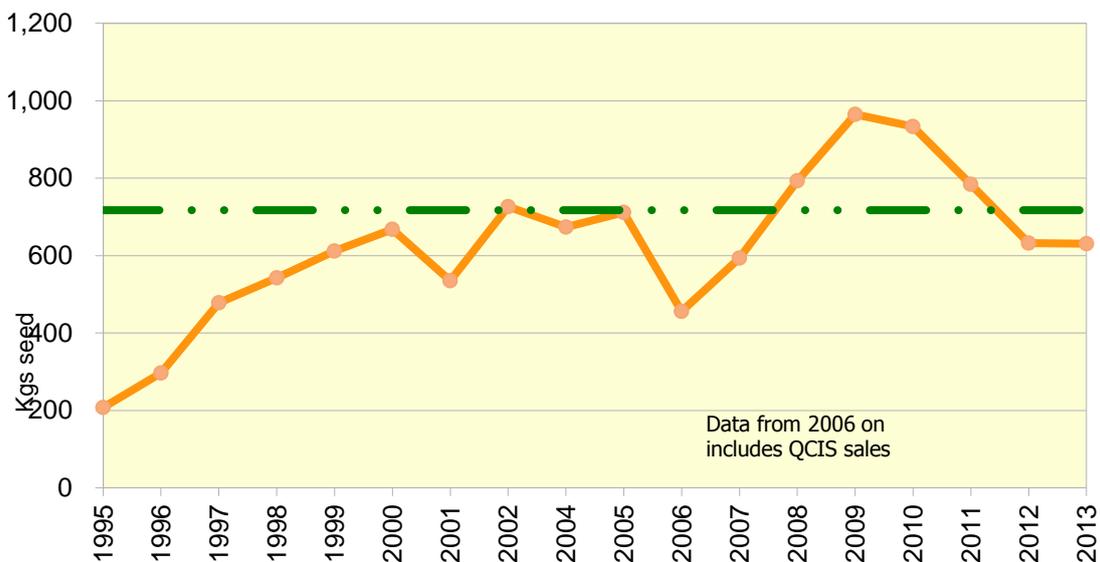
Variety	Buds sold
All private varieties	75,232
Lime Tahiti	57,230
Mandarin W. Murcott Afourer	51,265
Mandarin Imperial	48,180
Lemon Eureka	44,176
Lemon Myer (806)	33,485
Lime Kaffir Eyles	29,405
Valencia Keenan	26,385
Navel Washington	26,070
Mandarin Emperor	24,520
Lemonade	17,330

The mix of varieties sold has remained largely unchanged over the years, but private varieties are steadily increasing and forming a significant part of Auscitrus bud sales.

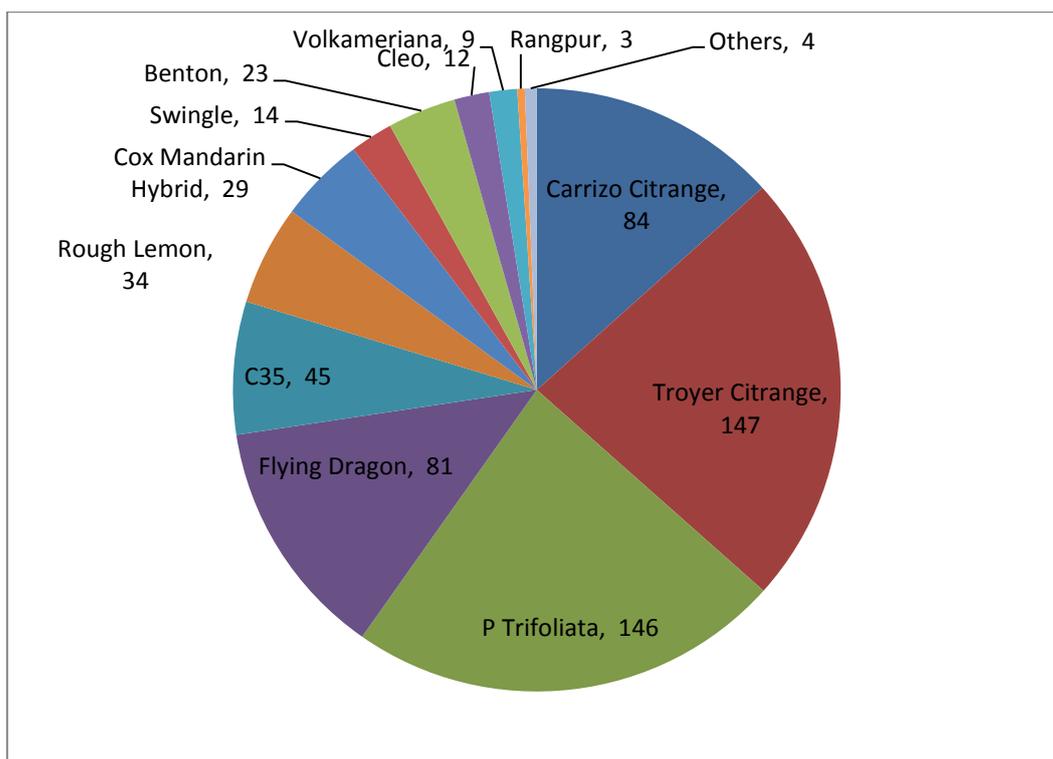
## SEED SALES

Seed sales for 2013/14 totalled 751kgs, up from 632 kgs in 2012/13. However, this total included a one off sale to an international customer of 120kgs of Carrizo citrange, so local seed sales were almost identical to last season. This is still below the 10 year average, which was pushed up by very strong seed sales in 2009 and 2010. The international sale is not included in the following charts.

Historic seed sales



Major sellers were as usual Troyer citrange, *P. trifoliata*, Flying Dragon and Carrizo citrange. Sales of C35 are steadily increasing.



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## AUSCITRUS OPERATIONS AT EMAI

Elizabeth Macarthur Agricultural Institute (EMAI) is located in a non citrus producing area at Menangle, on the outskirts of south western Sydney. At EMAI there is a NIASA accredited nursery and laboratories that are certified under ISO 9001. Auscitrus is involved in 2 main areas at EMAI:

- Citrus Foundation Repository
- health status testing of its commercial budwood and rootstock seed trees

The following report covers activities during the 2013/14 financial year.

### **Citrus Foundation Repository**

#### Repository for high health status clones, EMAI & Dareton

The repository currently holds over 170 high health status citrus clones with at least 1 tree of each variety held in screen houses in 2 locations at Dareton and EMAI.

The high health status repository at EMAI fills 2 screen houses, with private varieties held separately from the public varieties. Fruit are observed and photographed on EMAI repository trees and the images are maintained in a database.

Four new locally selected varieties entered the repository over the 13/14 year and mother trees were placed in the EMAI and Dareton repositories. No imported varieties were released from quarantine over the 13/14 year.

#### Repository for pre-immunised clones, EMAI

The repository for pre-immunised clones is housed in a controlled environment greenhouse at EMAI. This repository contains over 80 citrus clones that have been pre-immunised with a mild strain of citrus tristeza virus (CTV). This mild strain serves to protect against more severe strains of the virus that may be introduced to trees in the field by aphids – this control mechanism is called mild strain cross protection.

Trees in the citrus repositories are tested regularly for graft-transmissible pathogens. Refer to the section on 'Health status testing for citrus pathogens' for testing details.

The maintenance and testing of public varieties is funded by HAL and Auscitrus via VC project CT10008 'Protecting Australia's citrus genetic material' from July 2010 to June 2015. The maintenance and testing of private varieties is covered by a contract agreement between the private variety owner and Auscitrus and is paid for by the variety owner.

It is important to note that the *high health* status of repository trees means that no viruses or viroids that we test for have been detected in these trees using our current test methods. These trees have a *high health status* but pathogens may be detected in these trees through improved test methods and the discovery of new pathogens.

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## Health status testing for citrus pathogens

### Citrus viroids

All budwood source trees are scheduled for testing for citrus viroid infection every 3 years using biological indexing methods on Etrog citron indicator plants. All suspect results from the biological indexing are investigated further using molecular techniques.

Viroid testing commenced for 552 and was completed for 357 Auscitus budwood multiplication trees during the 13/14 year.

### Citrus tristeza virus (CTV)

CTV is endemic throughout Australia. There are many strains of the virus from mild to severe causing a range of disease symptoms.

Every tree in the citrus repositories is tested annually for the presence of CTV using a serological test called direct tissue blot immunoassay (DTBIA). This test is used to confirm that the virus is not present in the high health status clones and to confirm that the virus is present in the pre-immunised trees.

Trees in the EMAI screen house repositories were tested for CTV in autumn 2014 and the Dareton repository trees were tested in spring 2013. The Dareton repository trees will be retested in spring 2014.

No CTV was detected in high health status repository trees using DTBIA.

All trees in the pre-immunised repository tested positive for CTV, except for trees of Herps, Pomelit and Afourer. A number of trees were weakly positive but viral particles were still detected. Budwood is only sourced from pre-immunised trees that have tested positive for CTV during the past year.

All grapefruit trees in the budwood multiplication blocks are tested annually to confirm the presence of a mild isolate of CTV that protects trees against more severe grapefruit stem pitting strains.

During the 2013/14 financial year, 74 grapefruit trees from budwood multiplication blocks at Dareton were inoculated onto West Indian lime indicator plants to check for the presence of the mild pre-immunising strain of CTV. Biological indexing results confirm the presence of a mild protective CTV strain in the trees. Note that molecular testing conducted in 2008 detected more than 1 strain of CTV in many trees.

### Citrus psorosis virus

Budwood multiplication trees are scheduled for testing for psorosis virus every 9-12 years via biological indexing. During the 13/14 year, 218 budwood multiplication trees were tested for psorosis. No psorosis symptoms have been observed on the foliage of the indicator plants. The stems were peeled to look for symptoms of CTV stem pitting. Psorosis indexing commenced for an additional 254 trees in this period.

### Field inspection

The Auscitus budwood multiplication blocks at Dareton Agricultural Research and Advisory Station were inspected on 20<sup>th</sup> August 2013 by the Auscitus indexing officer and the Citrus Pathologist. All trees in budwood blocks 2 and 4, grapefruit trees in block 3 and the roostock seed supply trees were inspected for disease symptoms and off-type shoots.

Unthrifty trees were identified and reported to the Auscitus manager in a report sent via email on 30<sup>th</sup> August 2013.

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## Pathogen elimination

Viruses and viroids can be removed from infected mother trees by shoot tip grafting and heat treatment. Successful shoot tip grafted plants then require testing to determine if all known pathogens have been eliminated. Auscitrus provides the service of pathogen testing and elimination by shoot tip grafting for Australian selections.

At the end of the 13/14 year, 16 private varieties and 1 public variety are currently in the variety testing program. Of these, 12 private varieties and 1 public variety are undergoing pathogen elimination by shoot tip grafting. Results or approval to proceed are pending for the remaining 4 varieties.

Pathogen testing was performed on 4 private varieties where the owner decided not to proceed with pathogen elimination.

Over the past year, no pathogens were detected in 3 varieties and they have entered the repository system. Pathogens were successfully eliminated by shoot tip grafting from 1 variety which has now been placed in the repository.

## Quality assurance

The EMAI nursery is NIASA accredited and the Citrus Pathology and Soil Health Team is ISO 9001:2008 certified. The EMAI repository for high health status citrus clones is also accredited as an MPI NZ off-shore quarantine facility (renewed in April 2010). The team was inspected and audited during the 2013/14 financial year and maintained their NIASA accreditation and ISO certification. The Auscitrus and EMAI management committee has also inspected the site.

## Staff

NSW DPI staff involved with Auscitrus activities at EMAI during the 13/14 financial year:

Sylvia Jelinek                      Auscitrus Indexing Officer

Allise Fail                              Nursery Assistant (2d/wk)

Nerida Donovan   Citrus Pathologist