



*auscitrus*

**Australian Citrus Propagation Association  
Incorporated**

**ANNUAL REPORT**

**2024**

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## GOVERNANCE

### OUR VISION

To be an integral component of Australia's citrus industry biosecurity through the provision of citrus propagation material produced according to world's best practice.

### OUR MISSION

Auscitrus will protect the Australian citrus industry by ensuring that adequate high health and true to type citrus propagation material is produced in a scientifically sound, efficient, and sustainable manner.

### AUSCITRUS MEMBER ORGANISATIONS AND DELEGATES

<b>Member organisation</b>	<b>Delegate</b>
Citrus Australia Ltd	David Stevens (grower)
Nursery and Garden Industry NSW & ACT	Gary Eyles (nursery)
Nursery and Garden Industry NSW & ACT	Mark Engall (nursery)
Nursery and Garden Industry Qld	Wayne Parr (nursery)
Nursery and Garden Industry VIC	Sean Arkinstall (nursery)
Queensland Citrus Improvement Scheme	Steve Burdette (grower)
South Australian Citrus Improvement Society	David Arnold (grower)
South Australian Citrus Improvement Society	Simon Lehman (grower)
Sunraysia Citrus Growers	Jonathan Chislett (nursery)
Sunraysia Citrus Growers	Matthew Cottrell (grower)
WA Citrus	Anthony Innes (nursery)

### AUSCITRUS EXECUTIVE COMMITTEE

**Gary Eyles (Chairman & Public Officer)**

**David Arnold (Vice Chairman)**

**Wayne Parr**

**Steve Burdette**

**Jonathan Chislett**

**Mark Engall (Guest – non-voting)**

## CHAIRMAN'S REPORT 2024



I begin this report by noting the passing of John Forsyth. John was the Citrus principal in NSW Department of Primary Industry for many years. He was pivotal to the success of the NSW budwood scheme and its development into the Auscitrus program that we know today. Please read the In Memorium to John which is attached to the annual report.

In last year's report I mentioned that the Executive committee and Management were scoping out options to update the structure of Auscitrus. The current structure was developed many years ago and was related more to history than the modern trading environment. The aim was to align Auscitrus more closely with the stakeholders of today. I am pleased to say that after a considerable amount of discussion and planning a new structure and constitution is being presented to the Annual General Meeting this year. If voted in favour Auscitrus will become a Company Limited by Guarantee. Current members (Industry Bodies) will remain as members and be able to have delegates but for the first time will have direct members from the nursery and grower industries. Any Nursery purchasing in excess of 5000 buds will automatically become a member and any grower with more than 5 Hectares of commercial citrus will be eligible for membership. The old structure is NSW based where the modern set up is Australia wide and fortunately it will be a simple changeover once the vote is taken. The aim was to align more closely with users of Auscitrus propagation material and it was agreed this was a good step in that direction.

As you will see in the annual report budwood and seed sales are still at a low point. Management and the Executive have planned for these periods of low sales and are working hard to minimise costs as best we can. Budgeted losses are being kept to a minimum and we are confident that we can maintain the quality of supply and sustain the business until demand returns to normal levels.

This year I want to make a special mention of the team at EMAI. Auscitrus is not just the River Road Dareton property. All the indexing for viruses and viroids is done at EMAI both biological and molecular. Shoot tip grafting is also done by the team at EMAI along with managing one of the Citrus repository houses and a pre immunised house. The testing program is very structured and equal to worlds best practice. It's a great team and we rely on their work as the technical backup to Auscitrus. It should be noted that Auscitrus does fully fund the EMAI citrus indexing operation. Importantly we have a continuing good relationship with NSW DPI who run the entire EMAI site.

Finally, I would like to express my thanks to Tim and his team at Dareton – Sierra, Robert and Mandy. Nerida and her team at EMAI – Adrian, Wendy, Anna and Grant. The rest of the Executive and all our various delegates. Its these people that make Auscitrus the successful organisation that it has become and continues to be for the future.

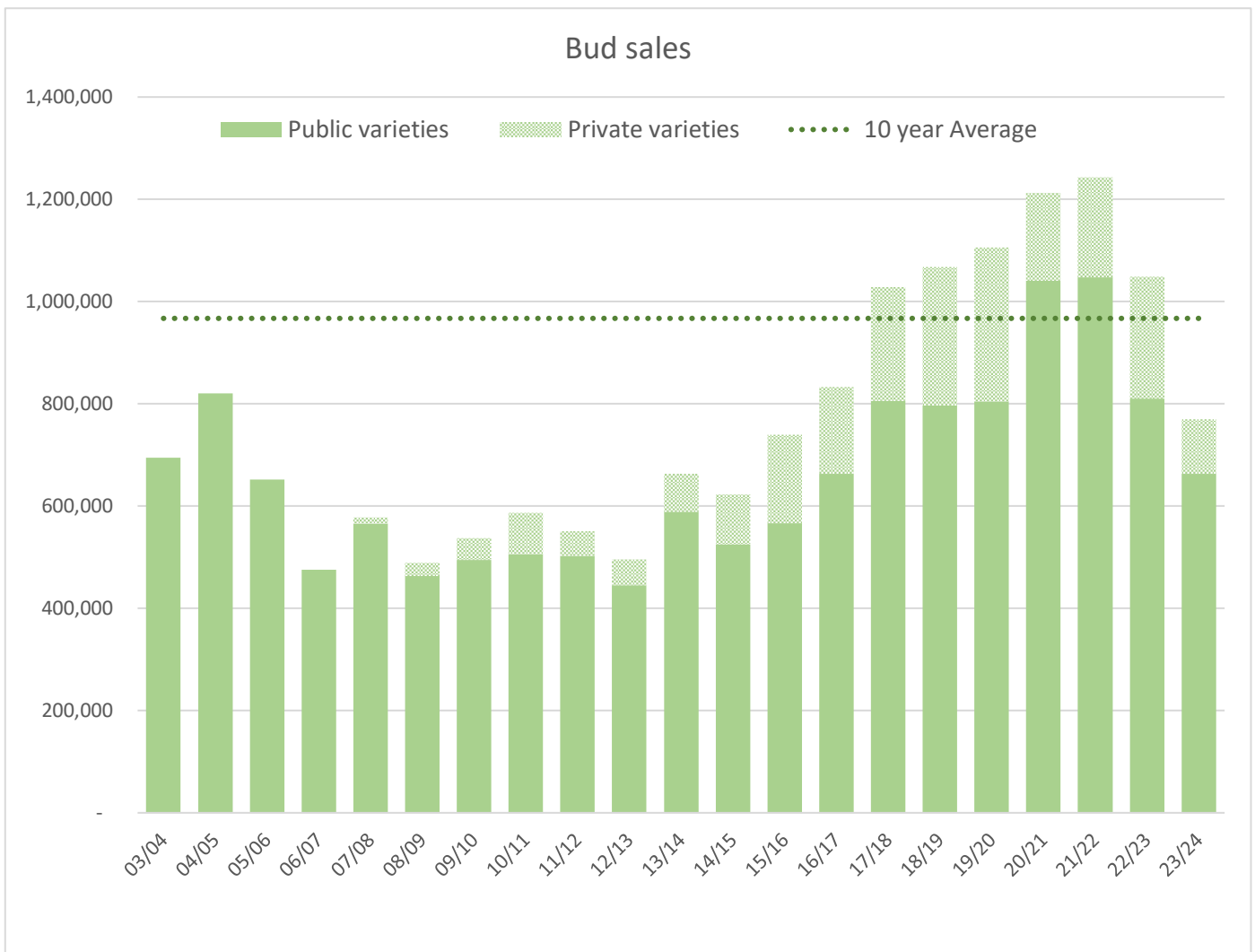
Regards

Gary Eyles, Chairman

## BUDWOOD SCHEME

Total buds sold for the 2023/24 season came to **770,353 buds**, well down from last year's sales of 1,049,266 buds, around a 26% decrease.

Of this total 107,221 buds were private varieties, around 14% of total bud sales.



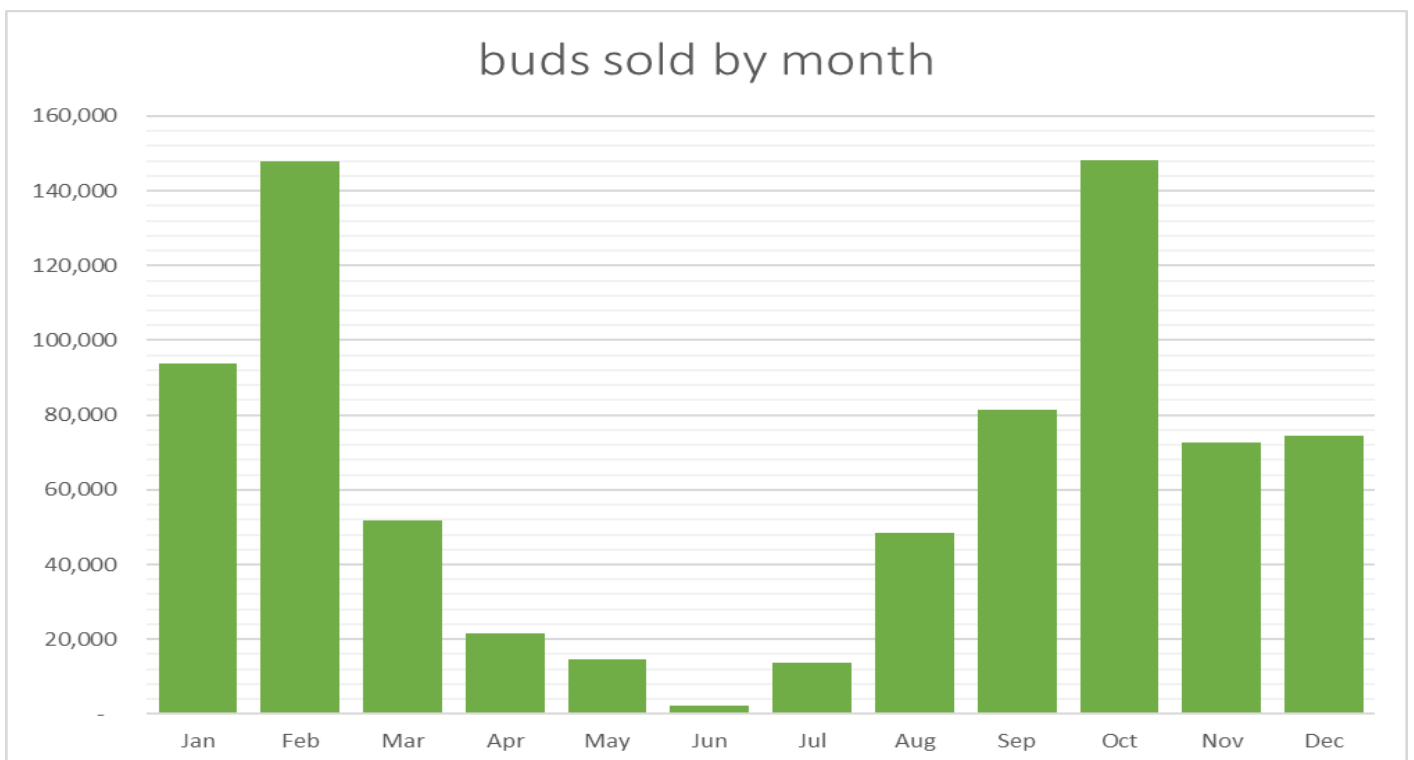
Of these buds, 31,640 buds were sourced off-site, either on indexed grower blocks or from Dareton DPI evaluation trials – they were all private varieties.

92,685 buds came from the budwood screenhouse, predominantly private varieties. The rest of the budwood continues to be harvested from the field budwood block at River Road, Coomealla NSW.

Varieties that sold more than 10,000 buds for the season were as follows:

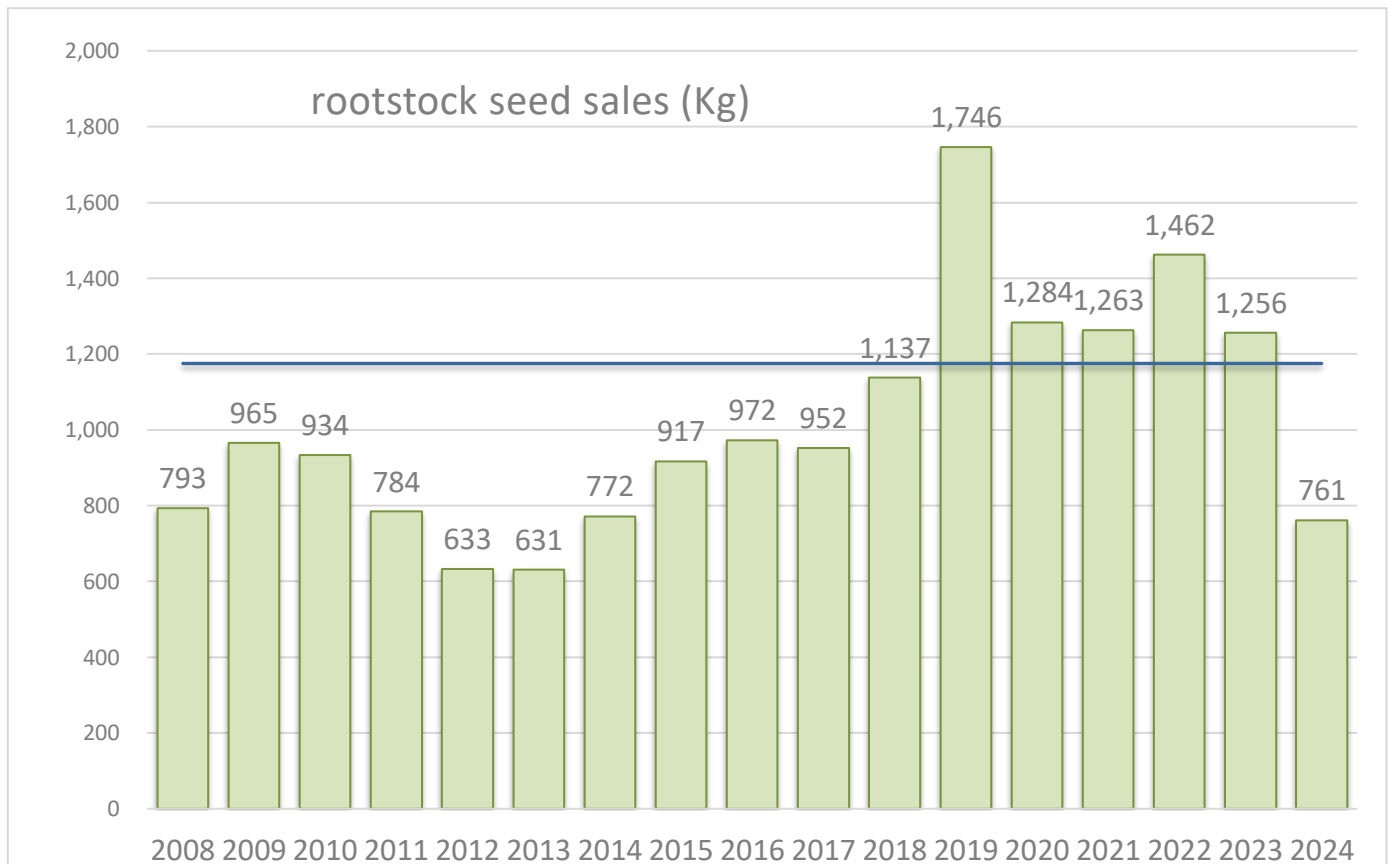
Variety	Bud sales
Lime Tahiti	57570
Imperial Mandarin	44835
Hamlin	40818
Washington Navel	32150
Lemon Eureka Taylor	29830
Meyer (806) Lemon	27890
Cara Cara Navel	25840
Benyenda Valencia	24880
Fisher Navel	23900
Private Variety	23000
Emperor Mandarin	21275
Keenan Valencia	20400
Lemonade	18105
Private Variety	13100
Lane Late Navel	12545
Kaffir Eyles Lime	12390
Okitsu Satsuma	12370
Delta Valencia Seedless	12035
Murcott Mandarin	11410
Lemon Lisbon ( Prior)	10475
Nagami Cumquat - Oval	10254
Navel Navelina (7.5 Spain )	10210
Midknight Valencia Seedless	10130

The spread of bud sales through the year was typical of most years.



## SEED SCHEME

Seed sales for the year came to **761kg**, well down from last year sales of 1,256kg, almost a 40% reduction, and well down from the 10-year average.



Breakdown of 2023/24 seed sales:

Rootstock	Kgs
Carrizo Citrange	238
Poncirus trifoliata	156
Flying Dragon	99
Troyer Citrange	76
C35	70
Zao Yang	26
Swingle Citrumelo	22
C22	21
Cox Mandarin Hybrid	17
Rough Lemon	10
Benton Citrange	5
Volkameriana	5
Rangpur Lime	4
Sweet Orange	2
Barkley	1
Cleopatra Mandarin	1

As of July 2024, seed orders for 2024/25 are at 807kgs with late orders to be expected through the year.

## AUSCITRUS OPERATIONS AT EMAI

Citrus is affected by several graft-transmissible diseases; the causal agents (pathogens) can be spread through propagation of infected material or via sap on cutting tools. Some pathogens cause serious disease or death whilst others induce only mild symptoms. There is no cure for graft-transmissible diseases therefore it is important to prevent orchard infections by propagating new citrus trees using propagation material sourced from health-tested trees. The Auscitrus source trees are routinely tested for graft-transmissible diseases. Independent testing is provided by the NSW Department of Primary Industries (NSW DPI) at the Elizabeth Macarthur Agricultural Institute (EMAI) located on the outskirts of southwestern Sydney. At EMAI there are quarantine laboratories and a nursery complex. Auscitrus is involved in 2 main areas at EMAI:

- National Citrus Repository Program;
- disease testing of budwood and rootstock seed supply trees.

The following report covers activities during the 2023/24 financial year.

### NATIONAL CITRUS REPOSITORY

The 'National Citrus Repository for High Health Status Clones' currently holds (307) citrus accessions with at least 1 tree of each variety held in screen houses in 2 locations; the Auscitrus property at Dareton (in the Sunraysia citrus growing region) and at EMAI (not in a citrus growing region). The repository contains both public (139) and private (168) citrus varieties from imported and local sources.

The 'National Citrus Repository for Inoculated Clones' is housed in a controlled environment green house at EMAI. This repository contains citrus clones that have been inoculated with a mild isolate of citrus tristeza virus (CTV). The mild isolate serves to protect against more severe variants of the virus that may be introduced to trees in the field by aphids – this control mechanism is called cross protection.

Before a new variety enters the repository system, a foundation tree is propagated and rigorously tested for graft-transmissible citrus pathogens. A range of biological, serological, and molecular methods are used to check the health status of the tree. If a pathogen is detected it must be eliminated by shoot tip grafting before a variety can enter the repository system. This ensures the high health status of trees held in the National Citrus Repositories. Imported varieties are tested and undergo pathogen elimination in post-entry quarantine run by the Australian Government Department of Agriculture, Fisheries and Forestry. Auscitrus provides the service of pathogen testing and elimination by shoot tip grafting for new varieties selected in Australia.

During the 2023/24 year, 13 Australian selections (8 public and 5 privately owned) and 4 imported varieties (1 public and 3 privately owned) entered the repository program.

After entering the repository system, foundation trees are re-tested for graft-transmissible pathogens according to a designated schedule. Trees are tested annually for CTV but are not tested every year for those pathogens not transmitted by insect vectors. This is because the risk of infection with non-vectored pathogens is low for trees managed under strict biosecurity protocols in the repository houses.



The maintenance and testing of trees of publicly owned varieties is funded by Hort Innovation and Auscitrus and for private varieties 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 have been detected in these trees using 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.

## TESTING FOR CITRUS DISEASES

### Foundation trees

CTV is graft-transmissible and can be spread by aphids. The repository houses are screened to exclude aphids but every tree in the repository is tested annually for CTV using a serological test called a 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 inoculated trees.

High health status trees in the EMAI repository screenhouses were tested for CTV in autumn 2024. No CTV was detected. The trees in the Dareton repository house will be tested in spring 2024.

Inoculated repository trees tested positive for CTV in autumn 2024 except for 10 newly inoculated trees which will be reinoculated in spring 2024. Some trees were weakly positive but viral particles were still detected. Budwood is only sourced from inoculated trees that test positive for CTV during their last test.

To meet export requirements, budwood of 4 privately owned repository varieties was tested for citrus leaf blotch virus (CLBV) and citrus variegation virus, and budwood of 1 public and 2 privately owned repository varieties was tested for apple stem grooving virus (ASGV), CTV and tomato big bud phytoplasma.

Budwood of 7 privately owned varieties was exported to New Zealand.

### Budwood and rootstock seed supply trees

Testing for pathogenic viroids was completed for 1100 Auscitrus and 9 non-Auscitrus budwood supply trees during the year. Testing for graft-transmissible viruses (ASGV, citrus psorosis virus and CLBV) was completed for 125 Auscitrus rootstock seed supply trees and 3 non-Auscitrus budwood supply trees (CTV and CLBV only). Testing for the presence of mild CTV by biological indexing was completed for 39 inoculated Auscitrus budwood supply trees.

Rootstock seed supply trees at the Dareton Research Station (7) were tested for ASGV, citrus exocortis viroid, hop stunt viroid and citrus leaf rugose ilarvirus to meet export requirements.

## PATHOGEN ELIMINATION

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

During the 2023/24 year, 23 varieties were processed as part of the variety testing program for Australian selections, with pathogen elimination required for all but one of these varieties. 13 selections were released from the Australian variety testing program and entered the National Citrus Repository Program during the 2023/24 year.

## RESEARCH AND DEVELOPMENT

The high health status of the Australian citrus industry is largely dependent upon accurate testing of propagation material for viruses and viroids which can cause graft-transmissible diseases. NSW DPI and Auscitrus work together on industry funded projects supported by Hort Innovation to find better methods for screening citrus plant material. Project 'CT21005 Improving Australia's ability to respond to graft-transmissible citrus diseases' started in September 2022 and is funded until May 2027, the third project in the long-term diagnostic program. Improvements to current protocols continue to be identified through the project work and adopted by Auscitrus where relevant.

## TEAM MEMBERS

Nerida Donovan	Citrus Pathologist
Adrian Dando	Auscitrus Indexing Officer (0.6 FTE)
Wendy Forbes	Auscitrus Indexing Officer (0.4 FTE)
George Haizer	Nursery Contractor (casual)
Vipawee Iamsa-at (Noi)	Nursery Contractor (casual)
Grant Chambers	Technical Advisor
Anna Englezou	Technical Advisor

## IN MEMORIAM - J.B. FORSYTH

It is with great sadness we note the passing of John Forsyth. John was the Principle in charge of Citrus for the NSW DPI during the 1980's and 90's. John spent his career with the DPI serving in many roles and places throughout the state eventually becoming the head of the citrus portfolio working out of head office. In those days the budwood and seed operation was entirely run on DPI research stations and came under the control of John.

John along with Pat Barkley were the backbone of the seed and budwood operation. Pat looked after the science and John looked after the operational matters. It was a period when governments everywhere began to withdraw funding and started looking to industry as the main source for funds for everything from research to industry support schemes, like budwood and seed. Although industry was paying for the seed and budwood the funds would end up in consolidated revenue not DPI coffers which made it hard to argue for the DPI to continue to run our scheme.

Nowadays, the scheme that became Auscitrus is self-funding and stands alone. If it wasn't for the efforts of John and Pat Barkley keeping the scheme under DPI funding for the period of change then no doubt it would have folded and not survived. We can be sure that without the efforts of John and Pat Auscitrus would not be sitting in the strong position it is today ready to supply industry with the high-quality clean material we need for now and the future.

On a personal note, John helped me greatly in my first period in the chair of what became Auscitrus. He helped me learn what was required and was instrumental in making it a true national scheme. We travelled together many times to Dareton research station and on quite a few international trips in the early days of ISCN. I thank him in particular for his forthright guidance and patience

Thanks John your legacy lives on.

Gary Eyles  
Chairman

## APPENDIX 1: NATIONAL CITRUS REPOSITORY FOR HIGH HEALTH STATUS

### CLONES

Accession No.	Variety	Accession No.	Variety
<b>Grapefruit</b>		I.N.93.0899	Navelina 315 ex Italy
I.N.91.0736	Flame	A.S.92.0773	Neilson
I.N.89.0620	Henderson	A.N.75.0029	Newton – Keenan 3125
A.N.73.0068	Marsh (3970 Druitt)	A.N.75.0030	Newton – Keenan 3247
A.N.91.0632	Marsh (3962 Druitt)	I.N.86.0598	Newhall California
I.N.89.0619	Ray Ruby	N.87.0551	Newhall 55-1 Spanish
I.N.89.0708	Rio Red	I.N.10.0984	Palmer 1051
I.N.89.0709	Star Ruby	I.N.86.0549	Parson Brown
A.N.04.0950	Star Ruby (Cant)	I.N.90.0739	Pera Bianchi
A.N.91.0633	Thompson (N Eagle)	I.N.90.0741	Pera Olympia
<b>Pomelo</b>		I.N.90.0742	Pera Limeira
A.Q.19.1061	K15	I.N.87.0547	Pineapple
I.N.01.0925	Namroi	A.S.17.1043	Poorman's orange
I.N.94.0786	Tambun	I.N.93.0860	Salustiana
<b>Citron</b>		I.N.98.0921	Sanguine
I.N.01.0926	Bergamia Castagnaro	Bergamot A.Q.78.4020	Smith – Joppa
I.N.94.0904	Buddha's Hand	I.N.08.0968	Tarocco Ippolito
I.N.09.0979	Etrog	I.N.07.0965	Tarocco Meli C8158
<b>Lemon</b>		I.N.07.0966	Tarocco Rosso C4977
I.N.01.0927	Eureka (Allen)	A.S.75.5074	Thomson
A.N.75.0034	Eureka (Lambert)	<b>Mandarin and hybrids</b>	
A.N.75.0035	Eureka (Taylor)	I.N.99.0909	Afourer
I.N.89.0703	Fino	I.N.99.0913	Avana Tardivo
A.Q.93.0785	Lemonade	I.N.99.0914	Avana Apireno
I.N.00.0918	Lisbon (Limoneira 8A)	I.N.98.0920	Clementine (Caffin)
I.N.75.0036	Lisbon (Prior)	I.N.89.0704	Clementine (Clementard)
A.Q.91.0631	Lisbon (Queensland)	I.N.99.0910	Clementine (Corsica 1)
A.NT.15.103 2	Tropical Meyer	I.N.99.0911	Clementine (Corsica 2)
I.N.89.0705	Verna	I.N.87.0544	Clementine (Fina)
<b>Lime</b>		I.N.87.0552	Clementine (Marisol)
A.N.23.1116	Australian Sweet Lime	I.N.05.0957	Clementine (Nour)
A.N.08.0969	Tahiti lime	I.N.87.0543	Clementine (Nules)
A.N.90.0771	West Indian lime (Schweppes)	I.N.04.0955	Clementine (Orogrande)
<b>Orange</b>		I.N.87.0545	Clementine (Oroval)
A.S.10.0985	Arnold blood	I.N.04.0953	Clementine (Sidi Aissa)
I.N.86.0600	Atwood	I.N.91.0733	Daisy
A.S.75.5095	B/3010	A.N.75.0090	Ellendale (Herps)
A.Q.75.4022	Benyenda		Ellendale / EM3
A.Q.78.4021	Benyenda – thorny	I.N.90.0736	Encore
A.S.94.0782	Berri 3501	I.N.08.0974	Etna
I.N.06.0960	Bintangcheng # 2	I.N.89.0707	Fallglo (VI 484)
I.N.08.0973	Bintangcheng Renbin # 5	I.N.90.0695	Fallglo (S-837-4-2)
I.N.97.0924	Pigmented navel (Cara Cara)	I.N.93.0859	Fortune
A.N.14.0993	Cara cara new	A.Q.94.0787	Fremont

Accession No.	Variety	Accession No.	Variety
A.V.94.0780	CSIRO 5	A.N.75.0041	Hickson
I.N.94.0902	Delta seedless	A.N.75.0043	Imperial 0043/2
I.N.86.0597	Fisher	A.Q.04.0952	Murcott tangor (Benham)
I.N.99.0912	Fukumoto	A.Q.90.4149	Murcott tangor (Turner)
I.N.86.0548	Hamlin	A.Q.94.0778	Nova (Trott)
A.S.75.5077	Hockney	I.N.91.0734	Nova (Spain)
A.N.73.0073	Houghton	I.N.04.0951	Parsons Special /2
A.S.92.0772	Hutton	I.N.86.0599	Pixie
I.N.02.0930	Jaffa	I.N.04.0954	Primosole
I.N.06.0959	Jincheng 447	A.N.75.0065	Satsuma (Silverhill)
A.V.93.0774	Jenner 4439	I.N.89.0706	Satsuma (Clausellina)
A.N.75.0032	Lanes Late 3976	I.N.23.1114	Satsuma (Hiroshima 7)
A.N.73.0072	Leng	I.N.91.0852	Satsuma (Okitsu Wase)
I.N.92.0901	Lima 156 (acidless orange)	I.N.91.0853	Satsuma (Miho Wase)
A.V.94.0781	Lloyd/3 Leng	I.N.23.1113	Satsuma (Yura)
A.N.23.1115	Maltese Blood	I.N.20.1068	Shiranui
I.N.94.0903	Midknight	A.Q.94.0886	Sunburst
I.N.92.0900	Natal	I.N.90.0818	Topaz tangor
I.N.86.0550	Navelate	A.NT.15.1034	Tropical Emperor
I.N.87.0546	Navelina Spain 7.5		
<b>Papeda</b>		<b>Rootstock</b>	
I.N.94.0776	Kaffir lime (Malaysia 4669)	A.N.18.1054	Benton citrange
A.D.97.0907	Kaffir lime (Nathanael)	A.N.23.1110	<i>Citrus macrophylla</i>
I.N.00.0916	Kaffir lime (Eyles)	A.N.23.1109	West Indian lime
I.N.15.1020	Sudachi	A.N.23.1122	Troyer citrange
A.N.13.0991	Yuzu	A.N.23.1123	Trifoliata
<b>Kumquat</b>		A.N.23.1124	C35 citrange
A.N.15.1033	Calamondin	A.N.23.1125	Carrizo citrange
I.N.04.0956	Nagami	A.N.23.1126	Cox citrange
		A.N.23.1127	Cleopatra
		I.N.24.1134	C22
		A.N.24.1136	Rough Lemon
		A.N.24.1137	Volkameriana