

CHERRY

ANNUAL INDUSTRY REPORT 2002-2003



Horticulture Australia

Your levy at work

Welcome to the annual report of Cherry Grower Australia's levy funded research and development program. This report is the official communication to cherry industry levy payers on the activities your levy funded in 2002/03 against the Cherry Growers Australia industry strategic plan and annual investment plan.

The research and development program has been managed by Horticulture Australia for the Australian cherry industry in accordance with the requirements set by the Commonwealth Government for corporate governance and accountability.

Twenty-six industry bodies including Cherry Growers Australia, own Horticulture Australia. Horticulture Australia assists industry to grow, and sell their products more profitably by investing in programs that create commercial opportunities for Australian horticultural producers and their value chain partners.

Horticulture Australia provides a professional R&D program manager to consult, develop, implement and report on the respective levy-funded programs. In addition Horticulture Australia manages several initiatives with across horticulture benefits including domestic consumer research, market access for export development, health promotions, water - availability and use efficiency, and sustainable development.

The company invests some \$60m of levy, private and Commonwealth funds into

more than 600 projects a year for the benefit of Australia's horticultural industries.

The 2002-03 cherry annual report includes summaries of a number of levy funded projects. More details of the current research and development projects can be obtained from the secretary of Cherry Growers Australia or Horticulture Australia.

Three new varieties released

Three new cherry varieties were released from the Australian cherry breeding program last year.

All three varieties, Sir Douglas, Sir Hans (both dark, red fleshed) and Dame Nancy (white fleshed) are large in size and mature one to two weeks before Christmas, the peak consumption period for cherries.

To maximise publicity and create awareness of the new varieties, a launch of the new varieties was held on 18 December at Cedars the former home of artist Sir Hans Heysen, after whom the Sir Hans variety was named. The launch culminated in a tree planting ceremony shared by the South Australian Minister for Agriculture Food and Fisheries, the Hon. Paul Holloway MLC, and the Managing Director of Horticulture Australia, John Webster.

Plant breeding is a long-term process; in the past a breeder would be satisfied if after an entire career he or she released a

single variety. This program has released six varieties in a seven-year period.

The three new varieties released in 2002 follow the 1998 release of Sir Don and Sir Tom varieties and the 2001 release of Dame Romas from the previous breeding program. Each new release will be fully evaluated by the independent fruit evaluation company Australian Pome Fruit Improvement Program APFIP to ensure growers have thorough independent information on performance of the variety in their area on which to base planting and management decisions.



New variety, Sir Douglas

The breeding program addresses the highest priority within the Cherry Growers Australia (CGA) strategic plan - the production of new cherry varieties suitable for major Australian production regions. CGA's vision for the national cherry breeding program is to increase grower profits by developing new cherry varieties that will attract a premium in export and domestic markets.

The Australian cherry industry has a 20-year outlook for the breeding program, project CY97002 formed the first 5 years and now CY02001 is the beginning of the second quarter. The project is exceeding its goal of 1000 seedlings per annum and because breeding is a numbers game this can only increase the chances of on-going success.

New varieties are being selected for resistance to rain-induced cracking, large size (greater than 25 mm in diameter) and self-fertility. Self-fertile varieties are more consistent in their cropping from year to year and are being developed in response to market demand for a consistent supply of fruit. The project also aims to select varieties that extend the current harvest season either later or earlier.

The market driven approach also determines the methods used in the breeding program. At this stage there is resistance to genetically modified foods in the market program so only traditional methods are used within the breeding program.

The final report for project CY97002 is available from Horticulture Australia.

For more information, please contact Dr. Andrew Granger
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Permission on the way for spray that increases yield

Cherry growers can look forward to increased yields if field trials on a new spray treatment, gibberellic acid (GA) are successful.

Following the success of GA spray treatments which increased cherry yields in North America, Cherry Growers Australia (CGA) initiated research to support its label registration in Australia.

As a result of starting these trials, which will generate efficacy and crop safety data, the Australian Pesticides and Veterinary Medicines Authority (APVMA) has agreed to provide a permit for use of GA as an interim measure.

Full registration of GA will provide Australian growers with an approved chemical capable of improving crop yield by as much as 20% in ideal conditions.

Two field trials in Victoria will be conducted to confirm overseas information that suggests that GA has beneficial effects on cherry fruit including increased fruit firmness, increased fruit size and improved colour.

The issues of adverse effects on fruit characteristics such as increased fruit pitting and splitting as well as decreased flowering/fruitletting in the season of GA application will also be investigated.

The data collected will be used in support of label extension of GA to cover cherries. Field trials will start in October and be carried out over two seasons.

Data generated will be analysed by Crop Protection Australia and then submitted to the APVMA for registration evaluation.

For more information, please contact Peter Taylor (Crop Protection Australia)
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At the cutting edge of cherry research

To ensure that the cherry industry is supported by well-informed scientists, the head of the Australian breeding program, Dr Andrew Granger, attended the 2001 international cherry symposium in the USA.

By staying abreast of international breakthroughs the Australian industry will ensure that it can continue to develop at a competitive level.

The aim of the symposium was to facilitate continued exchange of germplasm with breeding programs throughout the world, to foster scientific exchanges through visiting scientists, and to learn the latest on cherry research from around the world.

The Australian cherry breeding program stands alone in the southern hemisphere and it is therefore important to secure the latest northern hemisphere cherry variety germplasm to speed up results from the Australian program.

Below are some of the key messages from the 4th Symposium.

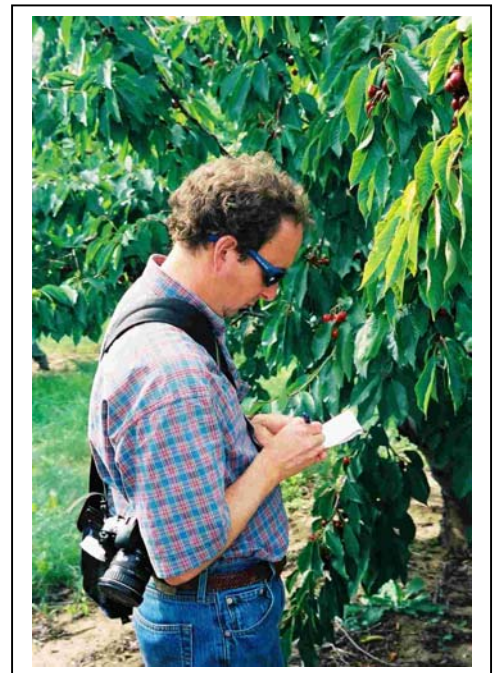
- Cherry plantings and production are increasing around the world and this was emphasised for the United Kingdom, United States of America, Chile and Australia.
- New variety releases include:
 - **Stacatto** from Summerland, British Columbia. It is the latest variety known maturing 1-2 weeks after Sweetheart. The vital statistics of Stacatto are:
 - average weight of fruit is 11.0g
 - susceptible to cracking with a 17% crack rate
 - good flavour

- red to dark red skin
- flattened heart-shaped fruit
- very firm.

- **Liberty Bell** from Prosser, Washington State University, USA, was released in 2000. Its attributes include:

- 28-32mm, round shaped fruit
- low susceptibility to brown rot.

- Rootstock trials around the world are consistently showing that many of the new rootstocks including the Geisla, GM, Maxma, PHL and Tabel Edabriez stocks are supporting small fruit size.

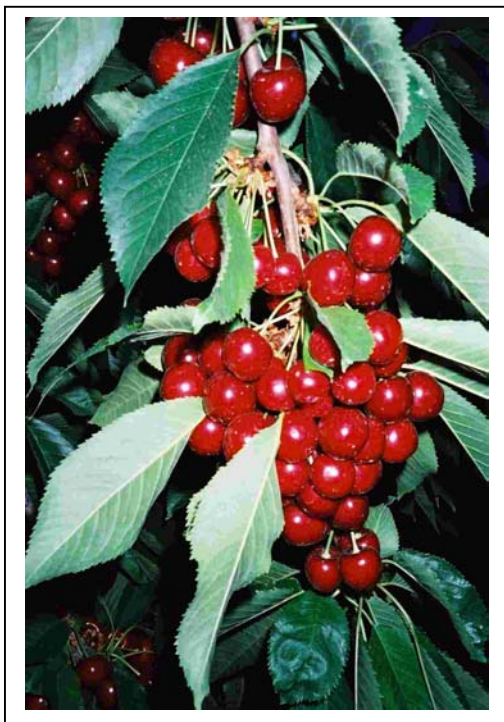


Dr Andrew Granger working in the field

- Various experiments comparing tree training techniques of pruning and bending concluded that:
 1. pruning delays the time of first yield and also tends to reduce yield, resulting in larger fruit;
 2. bending produces higher earlier yields and allows for better control of tree size.
- In spring temperatures above 23°C during flowering have been found to reduce fruit set and flower weight.
- Controlling fruit temperature postharvest is a better way to slow the breakdown and decay of fruit compared to modified atmosphere.

- For every 10 hours that cooling fruit to 0°C is delayed, 1 day of storage capability is lost.
- A yeast has been developed as a biological control of brown rot in cherries by Prof. Spots from Oregon State University.

For more information, please contact Dr. Andrew Granger
 T 08 8389 8809
 E granger.andrew@saugov.sa.gov.au



Choosing the right rootstock

A project to ensure growers have the information necessary to select the right rootstock for their conditions has already yielded vital information on the performance of rootstocks in varying growing regions and soil types.

Generally, the dwarfing rootstocks are performing better in the milder climates where fruit size is good and leaf canopy maintained. In hotter climates the dwarfing stocks are over-cropping and both fruit size and canopy growth are decreasing. Disease has affected some stocks in the higher rainfall areas.

While dwarfing was initially a major focus, some of the more vigorous stocks are providing excellent options for alternative

training systems and better growth and productivity characteristics for warmer and drier climates. Colt has confirmed its high value as a 'replant orchard' rootstock.

Suckering remains a problem for some *Prunus cerasus* stocks in milder climates.

The 2002/2003 season was the 'fifth leaf' growing season and yielded the second commercial crop. Both growth and yields vary greatly between the rootstock treatments and localities.

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Gene studies aim to produce higher yields

Through studying the genes of cherries, researchers aim to produce new cherry trees offering higher pollination rates, fruit set and yield for Australian growers.

Sweet cherry is naturally self-incompatible, that is, a cherry tree is unable to set fruit with its own pollen; pollen from another variety with an over-lapping flowering time is required to produce fruit.

The character of self-incompatibility has been called the "S-gene". Fruit set can occur if pollen is exchanged between two varieties that have different S-genes. Most breeding programs around the world release cherry varieties without identifying the S-genotype, and this causes problems for commercial growers as incompatible varieties will lead to low yields, but that won't happen with this program.

This research includes the evaluation and refinement of three lab techniques that determine cherry S-genotypes using DNA extracted from leaves. The Australian cherry breeding program will adopt the best technique.

The benefits for the Australian cherry industry and the breeding program will be a unique method for determining S-genotypes of cherry varieties and a method of linking genotypes with self fertility.

The result will allow the Australian breeding program to release new varieties

with known genotypes and pollinisers. This will be a world first, resulting in new cherry trees offering higher pollination rates, fruit set and yield for Australian growers.

In addition, the project will use similar techniques to investigate whether some varieties are able to pollinate themselves (i.e. are self-fertile), eliminating the need to match two varieties together in the orchard.

The project is due to complete in October 2003.

For more information, please contact Dr. Andrew Granger
T 08 8389 8809
E granger.andrew@saugov.gov.au

Australian cherry industry equipped for expansion

The Australian cherry industry has been expanding plantings at an exponential rate and has reached a stage where it needs to understand its position in the global cherry market.

In July 2001 a study tour visited the largest cherry production region on earth, the Pacific Northwest (PNW), which encompasses Oregon and Washington in the United States and British Columbia in Canada. The group conducted a benchmarking exercise comparing all factors ranging from climatic to socio-economic.

Other aims included developing an Australian testing program of new cherry varieties from Canada; exploration of opportunities for counter seasonal marketing through U.S; marketing infrastructure; better handling of fruit during harvest and packing with particular emphasis on keeping fruit cold.

Key findings

- Gibbrellic acid (GA) is a standard input to cherry orchards, producing larger and firmer fruit. Pack-houses will not accept fruit unless it has been treated with GA. The spray is now undergoing testing for use in Australia.
- A greater number of pests and diseases prevailed on cherries in the PNW than

Australia. Two that do not occur in Australia and stood out as major problems that were difficult to control were cherry fruit fly and cherry mildew. Of particular concern is that cherry fruit has been imported from PNW for some years now, and the risk of introducing cherry fruit fly and cherry mildew would appear to be high. If either one were introduced to Australia the industry would be devastated.

- Northwest Cherry Growers includes growers from Oregon, Washington, Idaho and Utah. They contribute \$US20 per ton for promotion and \$US2 per ton for research and development. Interestingly, the top two research and development projects are control of cherry fruit fly and cherry mildew, indicating the severe nature of these problems.



Australian cherry growers on the study tour

- A three-leader system for mechanical harvesting of sweet cherries has been developed.
- The U.S. apple industry is in decline and orchard removals have been supported by a \$US450M readjustment package paid directly to growers by the U.S. government, equivalent to \$US20,000 per acre. In the majority of cases, cherries were replacing apples.
- Washington State produces 100,000 tonnes of fresh cherries, Oregon State 25,000 tonnes and Canada 13,000 tonnes.
- The bulk of cherry production in the PNW occurs in the rain shadow of the Cascade Mountains. Rainfall is 200-300mm per annum. Soils are deep, fertile loams, fertiliser applications are determined using soil and leaf analyses and usually applied in split applications

through fertigation. Spring frosts are a problem in the region, flowers are damaged and the crop reduced. Large fans, overhead sprinklers, under tree sprinklers and oil burning pots are used to combat frost.

- Irrigation is essential in such low rainfall areas. Most irrigation projects were constructed by the U.S. Army Corps of Engineers. Water charges ranged from \$US35-\$US100 for the delivery of 600mm per acre each year. A range of irrigation schedules were used, but all irrigation ceases two days before harvest to reduce fruit splitting and pitting in the packing sheds. A range of application methods were also in use, from furrow to drip. In Canada, drip and under tree sprinklers were used.
- Mazzard seedling rootstock was used almost exclusively.
- Bing is the dominant variety grown in the PNW, but with two breeding programs, one based at Prosser and the other at Summerland, there was a vast array of varieties under test and in early commercial production. The most sought after was Staccato from Summerland.
- Yields quoted ranged from 17-25 tonnes per hectare of good-sized fruit.
- Variations on the traditional vase and central leader trees dominated training systems. Whatever the system, growers and researchers advocated pruning for food fruit size. Summer pruning was used to reduce vigour and improve fruit colour, while winter pruning was used to invigorate growth, particularly on young trees.
- Emphasis is placed on quick cooling of fruit using hydro-coolers.
- In Canada, graders no longer have stem cutters or mechanical sizing due to excessive damage caused to the fruit.
- In both U.S.A. and Canada growers can access very low cost income guarantee insurance underwritten by the government. The payout is 50% of the

previous three years' average or a rolling average over five years.

- In Canada growers receive up to \$5000 per acre to assist in making new plantings.

The final report is available from Horticulture Australia.

For more information, please contact Kym Green
T 08 8389 8261
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Across industry health initiative

There has never been a better time to promote the healthiness of fruit and vegetables – public concern is rising about issues such as childhood obesity and other lifestyle diseases such as coronary heart disease, cancer and diabetes and even the Government is saying that prevention is better (and certainly cheaper) than cure.



Horticulture Australia has identified the health credentials of fresh produce as a major opportunity for industry

Horticulture Australia has identified the health credentials of fresh produce as a major opportunity for industry. The key is for all fruits and vegetables to work together in promoting the most important of all the five food groups. One of Horticulture Australia's strategies is to throw its support behind the Australian Fruit & Vegetable Coalition, indeed Horticulture Australia is acting as the secretariat for this organisation.

The coalition, the first of its kind anywhere in the world, brings together all the sectors that are committed to promoting fruit and vegetables for health, including the Government, the horticulture industry from

growers to retailers, and health organisations such as the National Heart Foundation and The Cancer Council.

The aim of the coalition is to mount a significant national campaign to increase the consumption of all fruit and vegetables, including cherries, among the Australian public. To this end it is currently planning a public relations campaign to create a positive 'must act now' environment to secure the funding for just such a campaign.

For further information contact Sarah Pennell, T 02 8295 2330
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Across industry water initiative

Securing enough water for your trees is a major challenge for all growers. The drought has highlighted the finite nature of water, and the marketplace has valued this dwindling resource accordingly. While Horticulture Australia can't make it rain, it does realise the need for growers to have water security, and it has put an across industry water initiative in place that will help make sure Australian horticulture is well-armed in the battles for water that loom ahead.

The water initiative is about achieving ongoing access to water by being more proactive:

- in demonstrating to policy makers the economic and social benefits of horticultural water use;
 - in demonstrating the environmental credentials of horticulture;
 - by investing in projects that will further enhance water use efficiency and the sustainability of the industry.
- These projects will include:
- development and implementation of management systems that produce more crop per drop and lower environmental risk;
 - providing information for current drought-affected horticulture;
 - defining water service levels and security needed for horticulture and ensuring water suppliers take account of these;
 - communicating with industry and 'change agents' on water issues, and developing programs in response to strategic water access needs.

While each industry sector has its special needs, many challenges faced by the cherry industry are common to many sectors, and the horticulture industry as a whole would do well to put a coherent case to policy makers. To get the best return on investment, industry needs to get behind this coordinated approach.

A Water Steering Group is overseeing the initiative. It comprises grower representatives as well as those from key water agencies and peak bodies, and is chaired by Peter McCamish from the Goulburn Valley.

For more information, contact the Initiative coordinator, Charles Thompson (03 5441 4821; charlest@rendellmcguckian.com.au) or visit <http://www.rendellmcguckian.com.au/index.html>

Investment summary 2002/3

Year End 30 June 2003	R&D 2002/2003
Funds available 1 July 2002	86,602
I N C O M E	
Levies Received	86,123
Commonwealth Contributions	56,121
Other Income	5,175
T o t a l I n c o m e	147,419
BUDGET	120,038
Variance to Budget	27,381
PROGRAM INVESTMENT	
Levy Programs	97,021
Service Delivery Programs by Horticulture Australia	15,657
Aushort	3,128
Levy Collection Costs	3,389
Total Investment	119,195
BUDGET	101,782
Variance to Budget	-17,413
Annual Surplus/Deficit	28,224
Closing Balance 30 June 2003	114,826

Industry Advisory Committee

David Minnis – Independent Chair
Barry Gaudion – VIC
Scott Coupland – NSW
Kym Green – SA
Tim Birmingham – WA
Franklin Trouw – VIC
Heather Chong – TAS
Simon Rouget - VIC
Trevor Ranford – CGA
Kim James – Horticulture Australia