



## **Growing lemons in Australia- a production manual - Readers' Note**

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This document is part of a larger publication. The remaining parts and full version of the publication can be found at:

<http://www.dpi.nsw.gov.au/agriculture/horticulture/citrus/lemon-manual>

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## ORIGIN

The exact origin of the lemon has been disputed but it is believed to have originated in the east Himalayan region of India. Lemons are closely related to the citron and are believed to be a hybrid between the citron and the lime.

Lemons were well established in Iraq by 900AD and were common in the Near East and China by the 12th Century. After the 15th Century the Spanish and Portuguese took lemons to Europe and America. By the middle of the 17th Century lemons were introduced into South Africa by the Dutch. Lemons were brought to Australia by the English in 1787 (Sinclair).

Lemons are mostly grown in the semi arid and arid subtropical regions of the world where temperatures are above -4°C. Lemons are vigorous and tend to be everbearing producing several crops in a year. Compared to other citrus, lemons are high in total acidity (5-8%) and low in Total Soluble Solids (TSS: 7-9%). Lemons are mostly used for their juice, peel and oil. The oil is present in the peel, juice sacs and seeds and is used as flavouring agents in drinks, food, pharmaceutical and other produces. The peel is used in the production of brined peel, pectin and flavoroids.

## WORLD DISTRIBUTION

Lemons are grown in all citrus producing countries and thrive in a wide range of climatic conditions. They are highly acid and therefore used in refreshing drinks, cordials, and in syrups and to flavour and garnish foods. Unlike other citrus, lemons are rarely eaten fresh. Lemons make up about 5 percent of citrus production in Australia. Queensland leads production with 10,000 tonnes followed by South Australia, Victoria/NSW Sunraysia area and the Central Coast of NSW (6,000 tonnes each) then the Riverina (2,000 tonnes) and Western Australia (1,000 tonnes) with small amounts produced in the Northern Territory.

In 2002, Mexico, India and Argentina were the world's largest producers of lemons and limes according to the Food and Agriculture Organisation of the United Nations (FAO, 2002). Lemons and limes are high acid citrus fruit and are grouped in FAO statistics. In 2002/03 Australia imported about 2,500 tonnes of lemon/limes.

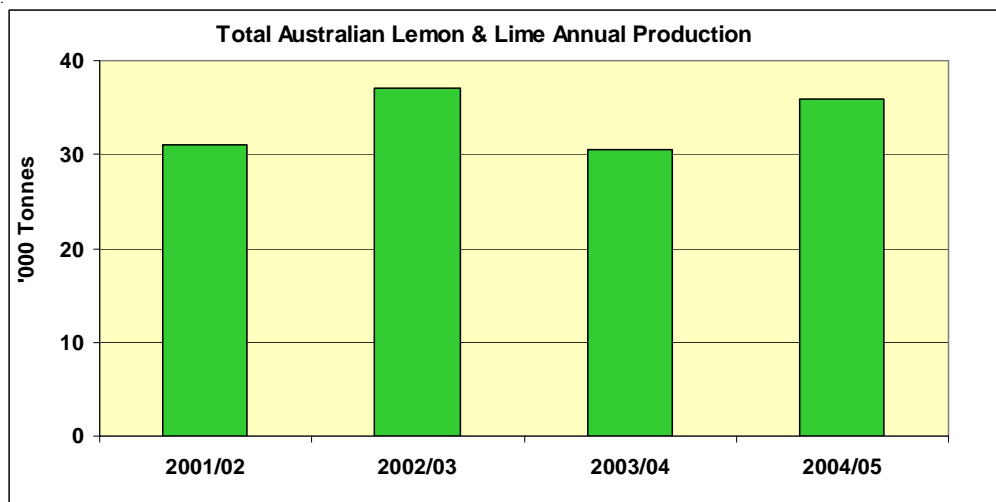
### *The world's top ten lemon and lime producers (FAO, 2002)*

Country	000 tonnes (1999/00)	000 tonnes (2000/01)	000 tonnes (estimated 2001/02)
Mexico	1,593	1,573	1,600
India	1,400	1,400	1,400
Argentina	1,163	1,217	1,200
Iran	1,033	1,039	1,039
Spain	746	846	1,018
USA	772	895	742
Italy	582	537	571
Turkey	580	377	590
Brazil	578	578	580
Egypt	278	251	269

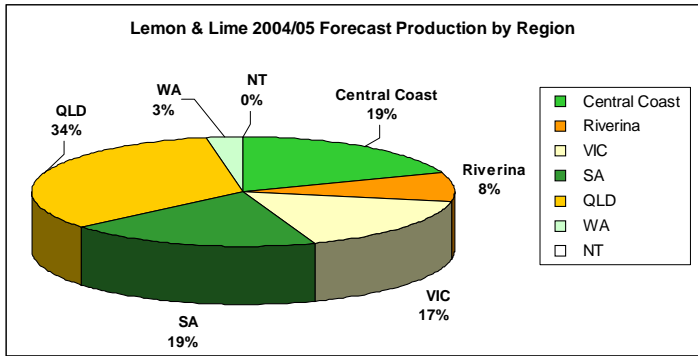
## AUSTRALIAN DISTRIBUTION

Lemons are grown in all of the major citrus growing regions of Australia, namely the Riverland in SA, the Sunraysia area in Victoria and NSW, the Riverina, the Central (Gosford) and North Coast areas in NSW, Western Australia, and for early-season fruit, the Gayndah and Mundubbera area in Queensland and Katherine and Darwin in the Northern Territory.

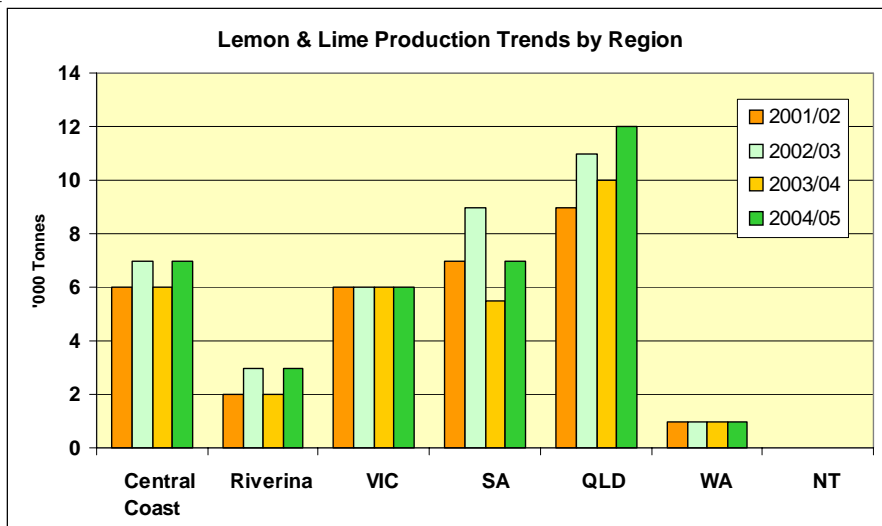
Of the estimated 990 hectares (350,000 trees) of lemons currently grown in Australia, the Riverland (369 ha), Queensland (284 ha) areas are the two largest, followed by the Sunraysia – mid Murray (210 ha) and the Riverina (127 ha). Australian annual production is around 31,000 tonnes of which over 45% goes to juice production, near 45% is consumed fresh and the remaining 10% is exported each year. (ACG statistics 2002/03.) Around 4,000 tonnes are exported annually. The main export markets in 2002/03 were in Asia (3,680 tonnes), followed by the Middle East (166 tonnes) and the United States of America (46 tonnes).



STATE	LEMON/LIME			
	2001/02	2002/03	2003/04	2004/05
Central Coast	6	7	6	7
Riverina	2	3	2	3
VIC	6	6	6	6
SA	7	9	6	7
QLD	9	11	10	12
WA	1	1	1	1
NT	0	0	0	0
<b>TOTAL</b>	<b>31</b>	<b>37</b>	<b>31</b>	<b>36</b>



## Origin and Distribution



Source: ACG Members, State/Regional Citrus Authorities, NSW Agriculture