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# **GRAPE PRODUCTION IN THE ASIA-PACIFIC REGION**



**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
REGIONAL OFFICE FOR ASIA AND THE PACIFIC  
BANGKOK, THAILAND, JULY 2001**

# **GRAPE PRODUCTION IN THE ASIA-PACIFIC REGION**

**Edited**

**by**

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**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
REGIONAL OFFICE FOR ASIA AND THE PACIFIC  
BANGKOK, THAILAND, JULY 2001**

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## FOREWORD

It is acknowledged that grape is one of the most important fruit crops of the world and it contains many of the most valuable elements necessary for life. The crop has a wide adaptability, and grapes can be grown under temperate, sub-tropical and tropical climatic conditions and varied agro-ecological settings. Remarkable success has been achieved in grape production and productivity levels in certain countries of the Region, while in other countries the progress is very limited. Opportunities for the further development of the Region's grape industry appear to be very good, although problems to be addressed are many and serious. Realizing that the food, nutrition, medicinal and economic values of the crop could be of significant importance for the population of the Region, it is recognized that there is a need for enhancing the development of the grape industry.

Against the above backdrop, FAO organized a Regional Expert Consultation on Viticulture (Grape Production) in Asia and the Pacific at the FAO Regional Office for Asia and the Pacific, Bangkok, Thailand, from 2 to 4 May 2000. Experts from concerned countries participated in the workshop. They were able to identify critical issues needing attention. The report of the consultation was published as RAP publication No. 2000/13, in August 2000, highlighting the major recommendations. This publication collates further useful information in the form of proceedings.

Appreciation is expressed to the participants for their presentation of papers and contribution to the discussions. In particular, sincere thanks must be accorded to Messrs. M.K. Papademetriou and F.J. Dent for compiling and editing this valuable document. Also, the unfailing support of Mrs. Valai Visuthi, who provided assistance in formatting the manuscript, is greatly appreciated.

R.B. Singh  
Assistant Director-General  
and FAO Regional Representative  
for Asia and the Pacific

# INTRODUCTORY REMARKS

Minas K. Papademetriou \*

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Allow me to welcome you to the FAO Regional Office and to this Expert Consultation. You may wish to know that this Consultation has been organized and sponsored by the FAO Regional Office for Asia and the Pacific. I am grateful to all of you for coming here to contribute to this Meeting.

The grape is one of the finest fruits and the most strength-giving food. It contains many of the most valuable elements necessary for life. In addition, it is known to have commendable medicinal qualities/properties, and it has been used in naturotherapy for centuries.

Remarkable success has been achieved in grape production and yield levels in certain countries of the Region, while in others the progress is very limited. The opportunities for further development of the grape industry appear to be good. However, at the same time, the problems to be addressed are many and serious. There is a need and scope for enhancing the development of the grape industry for economic, food and nutrition purposes as well as other reasons.

Strengthening cooperation among countries, institutions and individual scientists in grape development is very important. A forum like this will allow us to learn from each other. We must explore the possibilities of sharing our experiences for mutual benefit. It is in this context, that this Consultation has been convened. Briefly, its objectives are the following:

- a) To review the status of grape production in Asia and the Pacific, discuss the problems faced as well as strategies required to overcome existing problems.
- b) Elaborate on the potential and opportunities for grape development.
- c) Discuss ways and means of strengthening collaboration on grape research and development.

I wish you all productive discussions and good contacts among one another for the exchange of information and experience.

Thank you for your attention.

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# WELCOME ADDRESS

Ram B. Singh \*

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It is a great pleasure and privilege for me to welcome you to the Expert Consultation on Viticulture (Grape Production) in Asia and the Pacific. May I take this opportunity to extend to all of you warm greetings on behalf of the Director-General of FAO, from my colleagues in the Regional Office and myself. Special thanks are due to you all for gathering here to contribute to this Meeting.

Mr. Chairman! Permit me to congratulate you on your election. I am sure that under your leadership we shall have a productive meeting. I also congratulate Mr. David Oag on his election as Rapporteur of this Consultation.

Grape is one of the most important fruit crops of the world. It is also one of the most ancient crops known to people. Hyams (1954) traces its antiquity to 7000 BC and states that it was associated with people as a cultivated plant long before cereals. According to De Candolle (1886), the cultivation of grape in Egypt goes back to 4000 BC.

Grape cultivation is believed to have originated in Armenia near the Caspian Sea, from where it seems to have spread westward to Europe and Eastward to Iran and Afghanistan. The crop has a wide adaptability, and grapes are now grown in every continent, under temperate, sub-tropical and tropical climatic conditions and under varied agro-ecological settings, from mountains to plains to sea coasts. However, the ideal climate for grapes is in the Mediterranean region. In its natural habitat, the grape grows and produces during the hot and dry period, and undergoes dormancy during the cold period.

The long history of grape cultivation is linked with its multiple uses as food, source of nutrition, health and medicinal value and high economic significance. In Indian, Chinese and other societies, the role of grapes in health care and cure of diseases has been emphasized since ancient times. In this context, I would urge each one of you to read the book "The Grape Cure" by Johanne Brandt, popular for the last 73 years. As regards the economic dimensions, the Indian States of Maharashtra, Andhra Pradesh and Karnataka have found grapes as the most cash producing and job providing commodity. In Australia, grape wine export annually earns over 1,000 million dollars.

Countries with sizeable extent of grape cultivation in the region are China, Australia, India, Republic of Korea, Japan, Pakistan, New Zealand, Thailand, Vietnam and Myanmar. The total area under cultivation in these countries is estimated to be around 370,000 hectares, with a total production of about 5,000,000 metric tonnes and average yield of about 14 tonnes per hectare. There are wide variations in average national yields and from variety to variety, ranging from 5 to 50 tonnes per hectare. India, with the national average yield of 30 tonnes per hectare, is the world leader in the average yield.

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The worldwide distribution of grapes is coupled with the high genetic plasticity of this crop to enable its adaptation to temperate, sub-tropical and tropical regions. However, this diversity has not been effectively utilized. The countries must have their grape germplasm duly evaluated and share the information and desired stocks. Paradoxically, the genetic base of commercial grape varieties is rather narrow, causing vulnerability to diseases and pests, especially in the tropics and sub-tropics. Being amenable to propagation both through seed and vegetative means, there are wider options for its genetic maneuverings. In vitro propagation of grapes is highly commercialized in some of the countries and can be used for production of transgenics and other genetic transformants. With the above opportunities in mind, countries should give high priority to the development of promising new cultivars suitable for specific end uses and adapted to specific agro-ecological settings.

Grape production in the tropics and sub-tropics is exposed to complex biotic and abiotic stresses. Among diseases, anthracnose, downy mildew and powdery mildew are most serious. Important pests include mealy bugs, thrips and jassids. Both genetic and integrated pest management approaches should be promoted particularly to reduce the excessive use of pesticides. Often pesticide residues are obstructing grape promotion in many countries. Biological agents, such as the use of Australian lady bird beetle to manage mealy bugs, should receive high research and development priorities. In regard to abiotic stresses, drought, problem soils such as salinity, nutrient deficiencies, high temperature and untimely rains are major limiting factors. Selection and use of resistant/tolerant rootstocks will prove most promising.

Although the countries have developed useful production technologies such as pruning pattern and schedule for single or double fruiting, fertilization, water management etc, there is a need for greater understanding and manipulation of bud bursting, fruiting and ripening period and the overall reproduction phases. This will help in alleviating the adverse effects of rains, drought and market gluts and shortages. Physiological, biochemical and nutritional studies should be intensified to understand the intricacies.

Considering the various production regimes and end-uses of grape, it will be necessary to look at the grape industry in a matrix form. Each 'box' of the matrix should be analyzed critically and the problems and their solutions should be disentangled to provide greater location specific impact. The consultation is urged to undertake a SWOT (Strength, Weakness, Opportunity and Threat) analysis of the various regimes (boxes). Compilation of such information will be extremely helpful in identifying technologies and modes of their sharing among the partners and in deciding future priorities. The action points thus suggested will also give clear indication to FAO for internalizing the recommendations in its workplans.

Besides technologies, issues relating to policies, trade, marketing, pricing, and processing and product diversification should also be discussed. Development of the grape industry in the region thus calls for interplay of grape growers, industry and research systems in each grape producing country. Further, efficient inter-country cooperation mechanisms should be in place to share information, technologies and products to evolve a vibrant Asian grape industry.

I wish you success in your deliberations and a very pleasant stay in Bangkok.

Thank you.

# GRAPE PRODUCTION IN AUSTRALIA

David Oag \*

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## 1. INTRODUCTION

The first grapevine planting material arrived in Australia with white settlement in 1788. Today grapes are grown commercially in all States and Territories. Grape growing (wine, raisin, and table) is the largest fruit industry in Australia with production in a wide range of environments from temperate to tropical. Wine grape production and wine making is the largest and most predominant of the three viticulture industries.

There has been considerable change in production in all three industries over the last 4 years, up to 1999. Wine grape production has almost doubled to 1,076,207 tonnes and dried grape production has fallen to 119,438 tonnes, largely in response to export markets plus increasing imports of dried grapes. Table grape production has increased by almost 60 percent to 69,891 tonnes fuelled by industry expansion in sub-tropical regions and increasing exports to Asia. A feature of recent industry expansion has been the increased planting of varieties specific to the end use (wine, dried, table). Nevertheless, the multipurpose varieties such as Sultana, Muscat Gordo Blanco and Waltham Cross continue to account for 40 percent of white grape production in Australia. Grape growers redirect their fruit from drying to processing for wine or production of table grapes as the fortunes of each industry waxes and wanes.

A comparison with other grape producing countries throughout the world shows that Australia was the 14<sup>th</sup> largest producer of grapes (tonnes) in 1997, when Australia was ranked 9<sup>th</sup> in the world for volume of wine produced. While 28 percent of production (170.6 ML) was exported, this amounted to only a very small percentage of world wine exports. Australia is a relatively small producer and exporter of table grapes and raisins by world standards.

The viticulture industries in Australia are well developed, innovative and utilize the latest production practices. Australia is ranked among the top 10 countries in terms of average grape yield (t/ha). There is a high degree of mechanization in the vineyard, particularly in the wine grape and raisin industries. A substantial research, development and extension effort continues to generate practices that improve production efficiency and grape quality.

## 2. CURRENT STATUS OF GRAPE PRODUCTION

Grapes are grown in all States of Australia but most of the production is in the temperate zone. The three largest States by production are South Australia (Riverland), Victoria (Sunraysia) and New South Wales (Riverina) (Table 1). Wine grapes are grown in all States, table grapes in all States except Tasmania and raisins in Victoria, New South

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Wales, South Australia and Western Australia. Important grape production districts are shown in Figure 1.

Over the last five years wine grape production has almost doubled, raisin production declined slightly and table grape production increased moderately (Table 2). Further substantial increases in wine grape production will occur during the next two to three years as non-bearing vines come into production and reach mature cropping levels. Most of the growth in the table grape industry has occurred in sub-tropical areas across northern Australia. Production volumes will increase over the next two years when these new vineyards come into bearing. New plantings of wine grapes are expected to slow down, while raisin grapes will remain static and table grapes show a slight increase.

**Table 1. Production of Wine grapes, Raisins and Table grapes in Australia, 1998-99 (in tonnes).**

	<b>Wine making</b>	<b>Drying</b>	<b>Table grape</b>	<b>Total</b>
New South Wales	270,236	19,137	14,128	303,501
Victoria	277,869	96,788	42,391	417,048
Queensland	1,264	-	5,586	6,850
South Australia	491,621	2,764	2,149	496,534
Western Australia	32,067	749	3,531	36,347
Tasmania	3,121	-	-	3,121
Australia	1,076,207	119,438	69,891	1,265,536

Source: Australian Bureau of Statistics, Catalogue No. 1329.0, 1999.

**Table 2. Change in Grape Production (in tonnes), 1995 to 1999.**

<b>Year</b>	<b>Wine making</b>	<b>Drying</b>	<b>Table grape</b>
1995	577,364	147,006	44,456
1999	1,076,207	119,438	69,891

Source: Australian Bureau of Statistics, Catalogue No. 1329.0, 1999.

A large number of varieties are grown in Australia. The area planted with each variety and tonnage utilized for wine making, drying or as table grapes is shown in Table 3. The major table grape varieties are Thompson Seedless, Red Globe, Flame Seedless and Menindee Seedless. Menindee Seedless is the predominant variety of plantings in northern Australia. Other table grape varieties grown include Cardinal, Emperor, Ribier (Alphonse Lavelle), Marroo Seedless, Calmeria, Ohanez, Purple Cornichon and Waltham Cross.