GROWING FOR SUCCESS

Australia's Tree Nut Industry

2019

ANIC
australian nut industry council

Eric Siegers, ANIC Executive Officer
112 Burke Street
Wangaratta, VIC 3677

P: + 61 419 889 528
E: exec@nutindustry.org.au

Acknowledgements
The Australian Nut Industry Council would like to thank the Australian nut industry bodies for their contribution to the information contained within this publication.

This project has been funded via co-investment from Hort Innovation Ltd using funds from the Australian Government and the Australian Nut Industry Council.

Contents

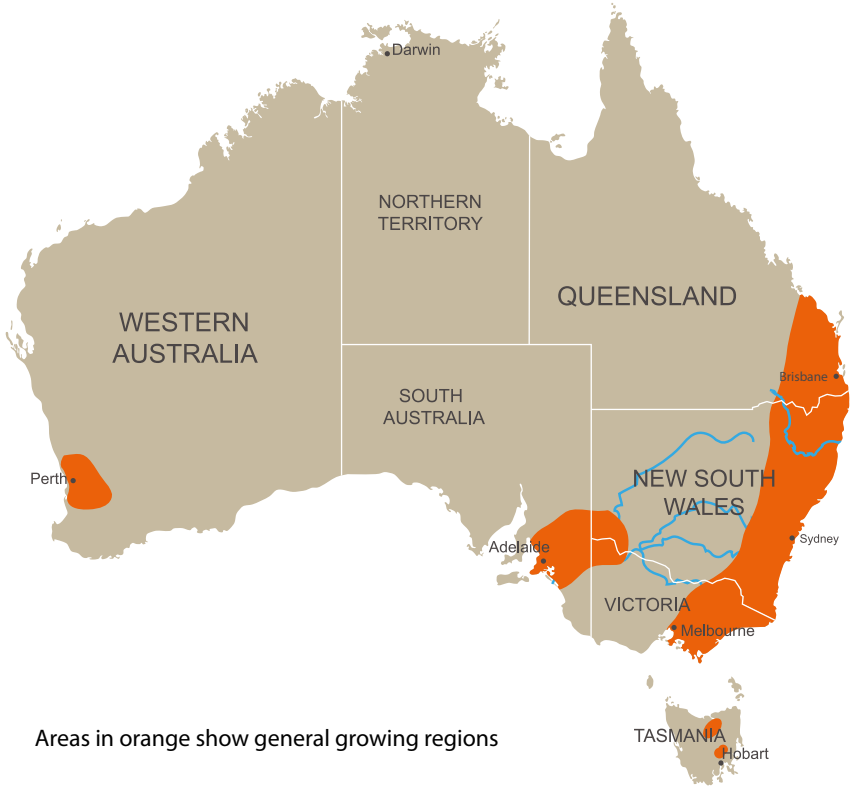
Australian Tree Nuts… a national success story

The Australian tree nut industry continues to stand out as a national success story. With a farm gate value of over AU$1 billion (2018), the industry makes a significant contribution to the Australian rural and regional economy. The industry is currently experiencing its largest expansion in a decade, with new plantings occurring across all tree nuts. With a lead time of 5-10 years, this expansion will push the farm gate value close to AU$1.7 billion by 2025. This expansion in orchard infrastructure and increased production has important policy implications.

Tree nuts have been grown in Australia for over 100 years and productivity has never been higher. Gross revenue per hectare ranges from $20,000-30,000, with a return of $2,000 - $3,000 per megalitre of water applied; these economic returns to the community are 10 to 20 times higher than the return from traditional row crops.

Strong markets, sound business models and recent free trade agreements with key export nations have all led to more than half a billion dollars of new investment per year in recent years to expand national production. Macadamia growers have increased area of production by 5,000 ha in the last few years, with $150 million invested annually. Since 2016, the almond industry has been investing $250 million per year in the establishment of new orchards, and developments will continue this trend for the next few years. As a result, almond production is estimated to rise by 74% by 2025.

This trend is being experienced across all nut sectors. Chestnuts are predicted to increase production 36% on 2017-18 levels by 2025, and pistachios by more than 88% in the same period. By 2025 walnut production is forecast to increase by 71% and pecans by 175%. Hazelnuts are set for a massive 21-fold increase in production by 2025 thanks to one large scale investor planting approximately 1 million trees in a new production area several years ago. The expansion of the nut industries generates flow-on business to associated sectors such as input suppliers, beekeeping and plant nurseries. Nurseries are producing millions of trees annually with 3-year wait-lists for macadamia seedlings. Many of these beneficiary businesses are located in regional areas.



Areas in orange show general growing regions

Current investment in the tree nut industry expansion is set to increase production by a further 65% by 2025, driving export values to over $1.3 billion.

The sector has sustained growth in domestic consumption of 6% year on year over the last 15 years. The industry value at retail of the domestic market exceeds $1.5 million per annum (2018).

Almonds, macadamias, walnuts, pecans and chestnuts export to more than 65 countries with export sales of $750 million per annum (2018). Tree nuts account for approximately 40% of all horticultural exports. Almonds are the nation's most valuable horticultural export commodity. Export sales of tree nuts are forecast to increase by 75% (to AU$1.3 billion) by 2025 on the back of the current wave of expansion. Most Australian nuts attract a premium in markets that appreciate food safety, product quality and reliability of supply chains. Buyers from Asia, Europe, the USA and elsewhere recognise Australia as the source of premium quality nuts, which are especially prized in the northern hemisphere. With the level of production now globally significant and expanding strongly, the industry is heavily focussed on developing programs to ensure market opportunities are maximised both domestically and internationally.

With new investment driving such positive growth trends in both production and gross revenue, employment opportunities in the tree nut industry and supporting sectors remain strong. However, the risks posed to the industries from plant biosecurity (insect pests, plant disease) and environmental threats (water availability, temperature extremes) are of particular concern. The potential for large economic losses from these threats are exacerbated because of the longevity of production within tree nut crops (25 to 100 years) in comparison to those industries with shorter production cycles (annual and biennial crops). As such, programs that protect the long-term investment of the tree nut industries from these risks are continually being updated and need to feature strongly in government policy.

Australian Tree Nut Industry - A Snapshot

Capital and expertise have combined to drive the expansion of area under nut cultivation in Australia. The industry is now a mixture of large 'corporate' farms and medium- and small-sized family farms. Average farm size continues to rise.

Tree nut production in Australia is dominated in scale by almonds and macadamias. Almonds represent more than 50% of the total area planted and the tonnage produced. The macadamia, Australia's iconic native species, accounts for approximately one third of both area planted and tonnage produced.

In 2018, the farm gate value of the industry again reached over $1 billion. This represents a 211% increase since 2011. Accounting for the current wave of expansion being experienced across the industry, this value is forecast to increase by a further 66% by 2025.

Tree nuts provide attractive alternative production options to the more traditional but predominantly low value Australian agricultural industries that are under pressure from low labour costs and heavily subsidised production of overseas competitors. Nut growing converts land from these other crops with relatively lower financial returns per hectare to intensive crops with a high return per hectare of land and per megalitre of water.

Tree nut industries require long-term investment in capital, technological skills and research, development and extension (RD&E). With the support of RD&E funding from the Australian Government, Australia is producing some of the highest nut yields per hectare in the world in almonds, pecans and macadamias. Long-term breeding programs aimed at improved varieties are also in place.

A foundation for the industry's growth has been widespread adoption of global best practice by growers, who have successfully adapted this knowledge to Australian conditions. Almond RD&E is currently investing in advanced production systems with new tree architecture and harvesting methods that will better address the challenges of growing in semi-arid environments. Industry led RD&E programs are developing new varieties that are expected to increase production in macadamias by 30%. Similarly, the nut industries have invested heavily in improved irrigation technology to achieve high water use efficiency (returns per megalitre of water applied are in the order of $2,000 - $3,000). Ninety-nine percent (99%) of almond orchards utilize drip irrigation. The Australian tree nut industries are widely respected around the world for their knowledge and culture of innovation.

Australia enjoys a reputation across the world for unsurpassed food-safety and environmental standards. Our relative isolation has generally provided Australian agriculture with a pest and disease free environment. The Australian nut industries have a long history of participation in government-supported or industry-based residue testing, and an exemplary track record measured against some of the strictest residue limits in the world. This provides global markets with justifiable confidence in the Australian product.

The tyranny of distance generally means that most agricultural commodities carry a high export freight cost to our major markets. By contrast, the high value of nuts compared to most broadacre crops means the freight cost is a small component. For example, a 20 foot container of almonds or macadamias has a market value in excess of $150,000 compared to around $5,000 for a container of wheat. Freight costs per kg are comparable but as a proportion of value there is a stark difference.

From paddock to processing, the Australian industry has excelled at producing a wide and growing range of tree nut crops. Underpinning this success are several factors including the variety of climatic and agronomic zones, excellent infrastructure and processing systems, investment in RD&E and skilled growers and advisors.

Production table (area planted, tonnes produced and Farm gate value)

Area Planted, ha	2011	2018	2021	2025
Almonds	26,944	42,000	48,500	50,000
Macadamia	18,000	25,000	27,500	30,000
Walnuts	2,790	3,600	4,300	5,000
Pecans	1,400	1,860	2,960	4,160
Chestnuts	1,240	1,480	1,540	1,700
Pistachio	900	1,300	1,900	2,700
Hazelnuts	140	2,500	2,750	3,000
Total hectares	**51,414**	**77,740**	**89,450**	**96,560**

Production, tonnes	2011	2018	2021	2025
Almonds, kernels	37,626	80,374	106,000	140,000
Macadamia, inshell	28,500	52,900	60,139	70,494
Walnuts, inshell	3,455	11,700	14,000	20,000
Pecans, inshell	2,700	1,860	3,524	5,120
Chestnuts, inshell	1,100	1,100	1,300	1,500
Pistachio, inshell	1,100	3,200	4,000	6,000
Hazelnuts	79	300	5,500	6,500
Total Production, tonnes	**74,560**	**151,434**	**194,463**	**249,614**

Farm Gate Value $m	2011	2018	2021	2025
Almonds	188	611	835	1,054
Macadamia	88	297	338	396
Walnuts	14	55	66	95
Pecans	19	11	21	31
Chestnuts	9	9	12	13
Pistachio	11	35	45	65
Hazelnuts	0.4	4	40	44
Total $m	**329**	**1,023**	**1,357**	**1,698**

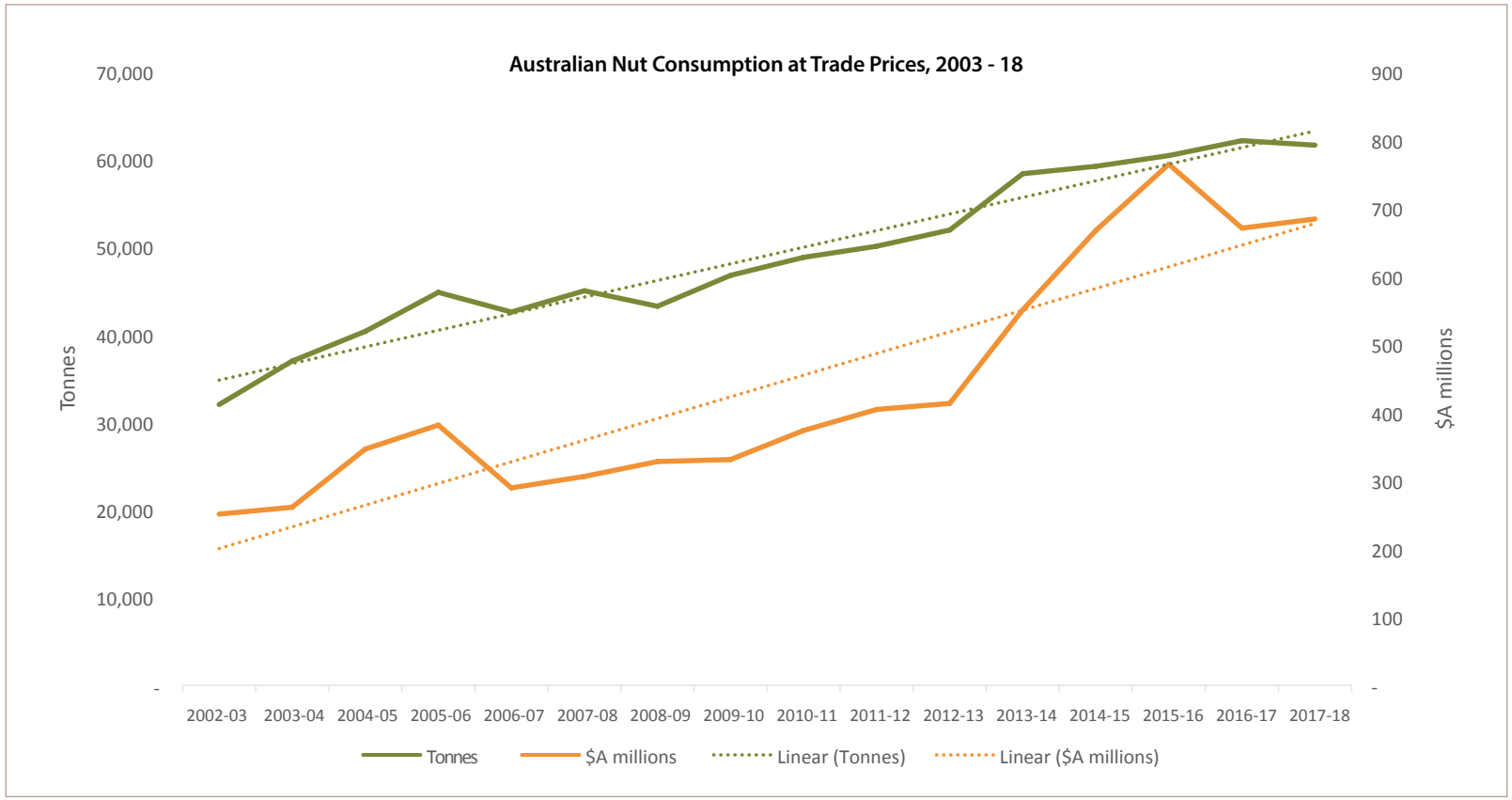
Source: ABS and industry

Australian Nut Consumption continues its growth

Growing consumer awareness of the health benefits of nuts; healthy eating trends driving Australian food consumption; and, marketing investment by industry have all contributed to the phenomenal growth in domestic consumption of tree nuts. Since 2013, nuts have been included in the Australian Dietary Guidelines and this has helped to reinforce the health benefits of nuts to consumers. Australian nut consumption (at trade) has almost doubled since 2002-3, reaching almost 62,000 tonnes in 2017-18. This represents an average compound growth of 6%.

The Australian nut crop is heavily consumed in local markets and any shortfall between domestic demand and available supply is met by imports. The almond, macadamia, walnut and pecan industries have all been developed with a strong international focus and are increasingly exported as their production base grows.

With a domestic consumption of 62,000 tonnes in 2017-18, the industry is valued, on current trade prices, at almost $700 million. Industry value is split almost equally between domestic and imported product. This trade price equates to an estimated retail value of $1.5 billion.



Source: Nuts for Life

Trade and Export

Tree nuts continue to perform strongly in the export sector, dominating Australia's horticultural exports. Tree nuts account for approximately 40% of all horticultural exports and are valued at over AU$750 million (2018). Prospects for export growth are also strong. The Australian tree nut industry is likely to surpass AU$1 billion in export sales by 2021, and AU$1.4 billion by 2025. This is largely thanks to a powerful and persistent worldwide dietary trend and a strong set of local production values that emphasise food safety and eating quality, as well as excellent social and environmental stewardship credentials.

Australia currently exports nuts to around 65 countries. The principle barrier to expanding exports is the tariffs that remain in some key existing and some potential new markets. These tariffs restrict nut consumption by increasing the price to the importing market, in some cases prohibitively.

The industry has capitalised on the recently negotiated free trade agreements (FTAs) between Australia and the nations of Japan, China and South Korea; as such, sales and exports of Australian-grown nuts increased almost immediately to these markets (156% growth from 2014. See Figure below). These FTAs have led to nut tariffs being phased out in those countries. These FTA markets, and other markets such as India, are major nut importers with significant potential for growth.

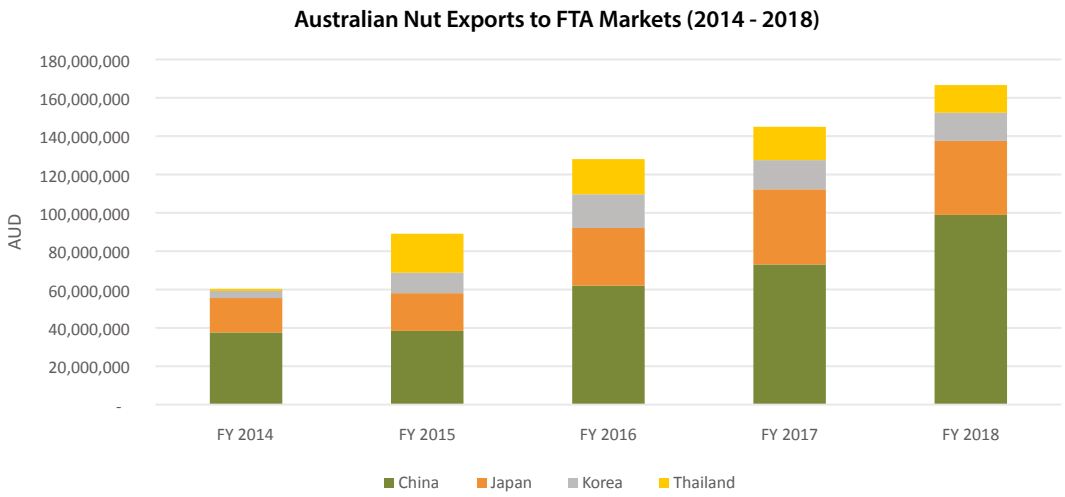
The industry will be looking to capitalise on export market development opportunities in coming years as the next wave of production comes on line. The macadamia industry, through its market development activities, since 2010 has grown exports to Korea, Taiwan and China by over 650%. Nuts must continue to figure in policy directions and government decisions, particularly in trade negotiations, given the industry's substantial export capacity both now and in the future.

Australian Tree Nut Export Volume and Value

Exports, tonnes (FY)	2011	2018	2021	2025
Almonds, kernels	20,805	64,531	67,367	74,204
Macadamia, inshell equivalent	28,271	42,455	48,111	56,395
Walnuts, inshell	2,623	5,399	8,400	12,000
Pecans, kernel equivalent	721	95	856	1,550
Chestnuts, inshell	671	8	50	100
Pistachio, inhsell	300	912	1,000	2,000
Hazelnuts	-		10	50
Total exports, tonnes	**53,391**	**113,400**	**125,794**	**146,299**

Exports, value $m	2011	2018	2021	2025
Almonds	135	443	640	793
Macadamia	71	266	320	400
Walnuts	10	25	47	67
Pecans	11	8	14	26
Chestnuts	3	0.2	0.4	1
Pistachio	2	8	9	18
Hazelnuts			1	4
Export value $m	**232**	**750**	**1,031**	**1,309**

Source: ABS and industry



NB: Figure includes Thailand, with the Australia-Thailand FTA in place since 2005

Source: ABS data with analysis by ANIC

Comparative Advantage

The Australian tree nut industries have a comparative advantage over competitors in a number of areas. Depending on the nut industry, these advantages vary from lower per unit production costs, to higher yields and a 'country of origin' gene pool (i.e. macadamias). This helps Australia compete (in both production and processing) with countries that have lower labour costs.
In addition, Australian tree nut production generally reflects a high strategic value into key importing markets, thanks to our ability to supply during northern hemisphere off-season windows. (Nuts are generally sold US$ per pound therefore the exchange rate is a major advantage when well below parity).

The major producers against whom Australia must compete are:

- Almonds: USA and Spain
- Pecans: USA, Mexico and South Africa
- Macadamias: USA (Hawaii), South Africa, Kenya, Guatemala
- Pistachios: USA, Iran, Turkey
- Walnuts: USA, China, Chile, Eastern Europe

In all cases, Australia is a powerful competitor based on cost or quality, or both.

Underlying World Demand

World demand for nuts is growing at about 4% a year, well above natural population growth. This expansion is coming from an increasing awareness of the health benefits of nuts, an increasing prosperity of the middle class in developing economies, and the development of many new retail food product using nuts as an ingredient; for e.g: nut milks and protein bars.

Developing economies, such as India, China, Eastern Europe and the Middle East are all showing strong and growing demand for tree nuts. While nuts are not luxury foods they have traditionally been beyond the pockets of the poor. As disposable incomes rise, consumption of traditionally more expensive foods increases.

The evidence and trends therefore suggest that as economic growth and incomes increase in developing countries, so will their demand for nuts.

Why Australian Nuts?

Australia's agricultural industries are among the most sophisticated, highly mechanised and environmentally aware in the world. Australian farmers are renowned for the production of high quality produce. The Australian nut industry is no exception, having developed in this competitive, globally-focussed environment. Key features of the industry include:

In-season nuts – all year round

A key driver in Australia's export success is the ability to provide reliable and premium quality supply in the northern hemisphere off-season. The Australian crop is timed perfectly to supply northern hemisphere markets for the critical Christmas/religious festival trade, a shipping schedule that challenges northern hemisphere competitors. The benefit for the international nut trade and consumers is that they now have access to a ready supply of the freshest nuts all year round.

Export focussed

Australian farmers have a reputation for being among the most efficient and advanced in the world. Due to our relatively small population, Australian farmers are acutely aware of the need for (and needs of) export markets, and the importance of supplying reliable lines of high quality product. As a result, our highly-skilled growers have concentrated on refining their ability to supply premium product to buyers around the world.

World class horticultural skills

Our growers have developed horticultural skills that have put them at the global forefront for nut yields per hectare and quality, something that is recognised around the world. The Australian nut industry is quick to adopt the very latest innovations and practices in production. Pecan and almond growers from traditional growing countries such as the USA regularly visit Australia to learn Australian techniques. The Australian macadamia industry provides research and development information to the rest of the world.

Investment in research, development and extension (RD&E)

Investment in RD&E across the sector is significant, and our industry is a world leader in nutrition, biological controls, harvesting and post-harvest handling. We are constantly improving the understanding and practice of growing high quality nuts in Australian conditions.

The nut industries were one of the first sectors of horticulture to take advantage of the Australian Government RD&E and marketing levy models. Tree nut industries have been long term active partners with Australia's Research and Development Corporations (Hort Innovation and AgriFutures Australia (RIRDC projects)). These partnerships have assisted the rapid growth in productivity and export earnings that has characterised the nut industry over the last decade.

Clean and green

Consumers today are much more knowledgeable than in the past when it comes to the environmental credentials of the food they eat.

Australia is an island nation surrounded by oceans that act as natural barriers to some of the most troublesome and costly pests and diseases that affect nut crops in other countries. This is a powerful marketing point of difference.

Many Australian growers apply integrated pesticide management (IPM) techniques in their orchards as a way of maximising the use of natural controls such as beneficial insects, thus limiting pest and disease damage and minimising pesticide use. Some orchards are even certified as organic tree nut producers.

Top quality from top growers and processors

Australian walnut growers are producing some the best quality walnuts in the world from relatively cool growing areas; Australian chestnuts are highly regarded for their flavour and quality appeal in Japan; Australian macadamias have developed a reputation in Asia for premium taste and quality, and demand from buyers for Australian almonds and pecans is high because of their reputation for excellent taste and quality. Local chefs and confectionery makers prize Australian hazelnuts for their superior flavour and freshness.

Australian processing systems are considered world class and help provide consumers with the confidence that Australian nuts are safe and reliable. Investment in the latest technology and infrastructure has seen fully automated cracking and shelling machines, electronic and near-infra-red sorting and grading, x-ray scanning, robotic packing, automated and climate-controlled warehousing with lot-tracking, and an increasing adoption of state-of-the-art treatment systems for micro-bacteriological control. Never satisfied with the status-quo, Australian processors are now also innovating to expand markets through the processing of new nut-based meals, flour and puree products.

Strong leadership

Each of Australia's tree nut industries has a strong, well-organised industry association which supports its growers in providing technical advice and funding RD&E and marketing. All have a focus on ensuring customer satisfaction and delivering exceptional value for money by expanding horticultural skills and the market both domestically and overseas.

Nuts and Health

Decades of research has shown that regular nut consumption is associated with better heart and metabolism, improved cognitive function and reduced mortality.
There are in excess of 500 scientific research studies and publications to substantiate the positive effect of regular nut consumption on human health.

These benefits include:

- a reduced risk of cardiovascular disease and coronary heart disease [1]
- reduction in total cholesterol, LDL cholesterol [2] and triglycerides [3]
- a reduced risk of overweight and obesity [4]
- reductions in body weight, BMI and waist circumference [4]
- reduced risk of developing type 2 diabetes [5]
- assisting with the management of type 2 diabetes [6]
- reduced cancer risk [7]
- positive effect on brain function, cognition and memory [8, 9].

Based on these health benefits, nut consumption also reduces overall mortality [1].
Eating nuts improves the quality of a person's diet and helps people to reach their recommended nutrient intake. This is because nuts are both nutrient dense and have a special combination of nutrients. Nuts provide healthy mono- and polyunsaturated fats, protein, fibre, vitamins and minerals, as well as a range of natural plant phytochemicals and compounds. Nuts can therefore be thought of as 'nature's own vitamin pills' – small packages that contain more than 28 different nutrients, with each nut containing their own unique combination.

Regular nut consumption is not only good for health, but good for the Australian economy too. In 2016 the Australian Institute of Health and Welfare (AIHW)[11] found that 1.4% of the cost of burden of disease in Australia is due to a "diet low in nuts and seeds" (similar to a diet "low in vegetables"). The AIHW also found around 16% of the costs to the economy from heart disease and 7% from type 2 diabetes can be attributed to a "diet low in nuts and seeds".

The nut health message is now getting through to consumers, who are responding by increasing consumption. Over the past five years, Australian tree nut consumption has increased nearly 20% by weight. The higher consumption trend reflects an increase in family budget spending on nuts and a trend of healthy eating driving Australian food consumption. Despite this increase, consumption appears to be well short of the Australian Dietary Guidelines' 30 gram serve size guidelines[12]. According to the Australian Health Survey 2011-13, as a population Australians are averaging only 6 grams of nuts a day. For the health benefits of nuts to be fully realised, Australia needs more people eating more nuts more regularly.

The Australian tree nut industry across the supply chain voluntarily invests, along with the Australian Government through Hort Innovation, in a health education program, Nuts for Life, to help to improve the nutritional reputation of nuts. On the back of the extensive research outlined above, Nuts for Life and the broader industry are helping raise awareness of the health benefits from eating nuts. As nut consumption increases, the Australian economy and society will be both more healthy and more wealthy.

References

1. Aune, D., et al., Nut consumption and risk of cardiovascular disease, total cancer, all-cause and cause-specific mortality: a systematic review and dose-response meta-analysis of prospective studies. BMC Med, 2016. 14(1): p. 207.
2. Neale, E., et al., The effect of nut consumption on heart health: an updated systematic review of the literature. 2018. Nuts for Life, unpublished.
3. Blanco Mejia, S., et al., Effect of tree nuts on metabolic syndrome criteria: a systematic review and meta-analysis of randomised controlled trials. BMJ Open, 2014. 4(7): p. e004660.
4. Li, H., et al., Nut consumption and risk of metabolic syndrome and overweight/obesity: a meta-analysis of prospective cohort studies and randomized trials. Nutr Metab (Lond), 2018. 15: p. 46.
5. Afshin, A., et al., Consumption of nuts and legumes and risk of incident ischemic heart disease, stroke, and diabetes: a systematic review and meta-analysis. Am J Clin Nutr, 2014. 100(1): p. 278-88.
6. Viguiliouk, E., et al., Effect of tree nuts on glycemic control in diabetes: a systematic review and meta-analysis of randomized controlled dietary trials. PLoS One, 2014. 9(7): p. e103376.
7. Wu, L., et al., Nut consumption and risk of cancer and type 2 diabetes: a systematic review and meta-analysis. Nutr Rev, 2015. 73(7): p. 409-25.
8. O'Brien, J., et al., Long-term intake of nuts in relation to cognitive function in older women. J Nutr Health Aging, 2014. 18(5): p. 496-502.
9. Dong, L., et al., Diet, lifestyle and cognitive function in old Chinese adults. Arch Gerontol Geriatr, 2016. 63: p. 36-42.
10. Mayhew AJ et al A systematic review and meta-analysis of nut consumption and incident risk of CVD and all-cause mortality. Br J Nutr. 2016 Jan 28;115(2):212-25.
11. Australian Institute of Health and Welfare 2016. Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011. Australian Burden of Disease Study series no. 3. BOD 4. Canberra: AIHW.
12. ABS 4364.0.55.007 - Australian Health Survey: Nutrition First Results - Food and Nutrients, 2011-12 http://www.abs.gov.au/ausstats/abs@.nsf/detailspage/4364.0.55.0072011-12.

INDUSTRY SNAPSHOTS

ALMONDS

Australia is the second largest producer of almonds in the world behind the USA where almonds dominate Californian agriculture. Australian almonds are set to have a farmgate value of billion dollars by 2025.

Production areas

- There are five major growing regions in Australia encompassing:
  - Adelaide and the Riverland (South Australia)
  - Sunraysia (Victoria)
  - Riverina (New South Wales)
  - Swan Region (Western Australia)
- Ownership structures are diverse with orchards owned by sole producers, family enterprises, both private and public companies, and investment funds.

Current production

- In 2018 the total area planted to commercial almond orchards was 42,000 hectares. In 2001, for comparison, it was a mere 5,232 hectares.
- Production in 2018 was 80,374 tonnes of kernel.
- The four major varieties grown in Australia include: Nonpareil (45.9%); Carmel (26.6%); Price (9.7%); and Monterey (7.1%) with other varieties making up the remainder 10.7%.
- Approximately 67% of almond production (kernel) comes from Victoria's growing regions, followed by 20% from South Australia, 12% from New South Wales and 1% Western Australia.

Industry potential

- The industry is currently in a period of significant expansion estimated to increase orchard area to 50,000 hectares by 2025 before plateauing due to constraints of water and suitable land. Production is estimated to rise to 140,000 tonnes by 2025 and 155,000 tonnes by 2030.
- Almond trees begin producing small commercial crops after three years and reach full cropping after 7-8 years. In 2018, nearly 10,000 hectares (25%) of almond plantings were not yet bearing and a further 6,000 hectares of bearing trees are not yet fully mature.
- Almonds have become an attractive crop for investors because the industry is highly mechanised, suited to large-scale orchards and has proven to be profitable and stable.
- Consumer demand for almonds continues to increase strongly both domestically and globally. In the past five years, Australian consumption has risen by more than 33% while global demand has been limited by supply. Demand is being driven by improving living standards in major export markets, the range of new food products using almonds as an ingredient, increasing consumer awareness of the health benefits of almonds, and the heavy investment in promotion by the Almond Board of California in global markets and the Almond Board of Australia in the domestic market.

Markets: present and future

- Australia supplies nearly all domestic almond consumption, and most of the growth in production is to be directed to export markets.
- Current domestic consumption of almond kernel is 23,000 tonnes.
- Some almonds are imported into Australia particularly for use in baking and confectionery, where small kernel size is preferred and best supplied by some Californian planted varieties.
- Almonds continue to be Australia's most valuable horticultural export product.
- Global demand has more than doubled in the last decade.
- Fifty countries now buy Australian almonds, with India being Australia's largest overseas market in 2018.
- While markets in India and Europe are growing strongly, significant growth has been experienced in the recent Free Trade Agreement countries of Japan, Korea and China.
- With their dynamic economies and large populations of increasingly prosperous and health conscious consumers, Indian and Asian markets will continue to import more almonds in the future.
- In 2018, Chinese tariffs on US almonds rapidly lifted Australian exports to China but this was constrained by limited product supply.
- Marketing and promotion programs funded by industry levies in the US and Australia have been effective in increasing domestic per capita consumption and targeted overseas market development.

Competitive advantages

- Australian orchards are comparatively high yielding and have a good mix of high yielding varieties that are popular in markets.
- Australian almonds are harvested counter seasonally to the US and Spain.
- Australia's new season's product is available in time for many Asian religious festivals that celebrate with nuts.
- Australian product is highly regarded in terms of quality.
- Superior crackout rates (in-shell to kernel ratio) is significant in markets preferring in-shell product.
- Free Trade Agreements in Asia have been beneficial.
- Australia is close to the expanding Asian market and marketers are willing to address niche market requirements.

CHESTNUTS

The Australian Chestnut industry continues to develop new processing techniques for frozen peeled chestnuts, chestnut meal, flour and puree products, all of which have the potential to expand the market in Australia and internationally.

Production areas

- The Australian chestnut industry operates principally in the southern states of Australia, including
  - NSW: Around Orange, Southern Tablelands, Blue Mountains and Batlow
  - Tasmania: Northern and Central
  - Victoria: North-east and Central; East of Melbourne
  - South Australia: Adelaide Hills
  - Western Australia: South-west
- Approximately 70% of the national crop is grown in north-east Victoria.
- The main varieties grown are Red Spanish, Purtons Pride and De Coppi Marone. Chestnuts flower during November and December and are harvested from March through to May.
- Many chestnut orchards are small family-owned orchards, but there are several large-scale commercial plantings, and the average size of new orchards is increasing.

Current production

- In 2018, chestnut production was valued (farm gate) at $9.4 million based on a production of 1,100 tonnes.
- In 2018 the industry comprised around 250,000 chestnut trees grown on approximately 1,500 hectares. The industry estimates that with more trees being planted, farm gate value will increase to approximately $12 million by 2021.
- The industry is primarily focused on the domestic market with approximately 2% exported, mainly to Asian markets.
- Production, based on a 2-year average, is about 1,200 tonnes a year of fresh chestnuts. (2017 - 1,300 tonnes and 2018 - 1,100 tonnes.)

Industry potential

- Chestnut production is expected to increase to 1,400 tonnes by 2021 as young orchards come into production.
- New varieties and improved orchard management techniques have reduced time to bearing and resulted in increased nut yield, nut size and ease of peeling.
- Some chestnuts are handpicked but more growers have moved to being fully mechanised as a result of development of new harvesting machinery.
- Growers are planting and re-working older trees to newer and more consumer-friendly varieties.

Markets: present and future

- Chestnuts are highly valued in Europe, the USA, Japan, China and Korea.
- Most growers sell their crop through the fresh wholesale markets.
- Current chestnut consumption in Australia is estimated at 1,200 tonnes, which is satisfied by domestic production.
- Small quantities of fresh and frozen peeled chestnuts are exported to Japan and Singapore.
- The Australian industry continues to develop new processing techniques for frozen peeled chestnuts, chestnut meal, flour and puree products. These value-added products are now being successfully marketed locally and overseas and have the potential to expand the overall market for chestnuts.
- The chestnut industry is seeking new export markets for fresh and frozen peeled chestnuts to sustain increased production.
- Nut size is important in the fresh chestnut market and new pruning techniques have enhanced this quality.

Competitive advantages

- Australian chestnuts are fresh in the northern hemisphere off season.
- The Eradication Program for Chestnut Blight undertaken by the Victorian Department remains ongoing. The fungal disease has devastated orchards and native forests overseas. Regular surveys will continue with the aim of eradicating the disease.
- With the exception of New Zealand, importing fresh chestnuts into Australia is prohibited.
- Australia is free from insect pests such as the Chestnut Gall Wasp and Chestnut Weevil.
- Australia's pest-free status means chestnuts are produced without insecticides.
- Australian chestnuts are highly regarded in Japan for good flavour and quality appeal.
- The Australian chestnut industry is consumer focused and the latest tree varieties being selected are based on ease of peeling and superior flavour. Overseas, yield is generally given a higher priority than eating quality in varietal selection.

HAZELNUTS

Locally grown nuts receive a price premium and are sought after by restaurant chefs, patisseries and confectioners because of their fresh taste compared to imported kernel.

Production areas

- Hazelnuts are grown in the temperate areas of south-eastern Australia. Main production regions are the Central Tablelands of New South Wales around Orange, Narrandera, and north-east Victoria around Myrtleford. They are also grown in central and eastern Victoria and increasingly in northern Tasmania. There are small levels of production in South Australia and Western Australia.
- Many hazelnut operations are small orchards of up to 6,000 trees although this is slowly changing with the average size of new hazelnut orchards increasing and more productive varieties being planted.
- Most orchards are family operated enterprises. Hazelnuts generally take seven to 10 years to come into commercial production.
- Australia has recently seen a major on-farm investment in hazelnuts by Ferrero, one of the world's largest confectionery manufacturers. Its wholly owned subsidiary, Agri Australis, has planted 1 million trees across 1,900 hectares near Narrandera. This confirms that the opportunities for Australian hazelnuts are large, giving renewed confidence to Australian growers. Ferrero's first small harvest occurred in 2018.

Current production

- In 2018, hazelnut production was valued at $3.7 million (FGV). There is approximately 2,500 hectares planted (including Agri Australis) to hazelnuts, consisting of around 1.2 million trees.
- Production is currently about 300 tonne in-shell, which will also increase as new orchards begin producing commercial quantities.
- New areas of hazelnut plantings have extended into southern NSW, eastern Victoria and throughout wider regions of Tasmania.

Industry potential

- The industry is set for rapid expansion - as young orchards come into commercial bearing the industry estimates hazelnut production by 2021 will be 5,500 tonnes in-shell with a value of $40 million.
- Growth in hectares under production is also expected as farmers look towards increased crop diversity.
- Until recently, it was thought that hazelnuts would only thrive in Tasmania and the cooler, higher altitude regions of Victoria and New South Wales. Plantings in warmer regions such as Mudgee and Narrandera, in the Riverina region of southern NSW, are doing well which suggests that other areas may be suitable for production.
- Interest in growing hazelnuts in Australia is increasing with a key driver being the opportunity to offer fresh Australian hazelnuts to the domestic consumer. As more production comes on-stream, Australian hazelnuts will increasingly become an import replacement crop for restaurants and premium quality confectioners and patisseries.

Markets: present and future

- Current domestic consumption of in-shell hazelnuts is relatively small at about 300 tonnes a year. Domestic consumption of hazelnut kernel is currently around 2,000 tonnes, equivalent to 4,500 tonnes in-shell.
- Australia imports 2,500 – 3,000 tonnes of hazelnut product annually, mainly as kernel, primarily from Turkey which is generally used by mass market confectioners.
- Australian hazelnuts in-shell are sold at farmers' markets, fruit shops, health food shops and co-operatives. There are several boutique cracking facilities producing kernel which is sold through the internet, farmers' markets, confectioners and patisseries. Some producers value-add to their kernels by making confectionery and health food products, hazelnut oil, flour and meal.
- Locally grown kernels receive a price premium and are sought after by restaurants, confectioners and patisseries because of the fresh taste of the local product compared to imported kernel.
- Demand for hazelnuts is increasing globally and as awareness of the health benefits of including nuts in the daily diet grows, consumption continues to increase.
- There is potential for exporting in-shell to Asian markets where foodstuffs produced under high safety standards are preferred.
- Between 2,500 and 3,000 hectares of well-managed plantings would meet Australia's current and future requirements.

Competitive advantages

- Australian hazelnuts offer a fresh supply in the northern hemisphere off season.
- Australia is free from Eastern Filbert Blight, a serious disease affecting the industry in the US.
- Because of the absence of serious pests and diseases in Australia, hazelnuts are produced with little use of herbicides and pesticides; indeed, organically certified hazelnuts are now being produced in Australia.
- Australian production is well supported by research, leading to improved, more efficient and sustainable production systems.

MACADAMIAS

By 2020 Australia will have about 30,000 ha planted to macadamias, with kernel production greater than 20,000 tonnes (60,000 tonnes in-shell) and an export value of over $340 million.

Production areas

- Macadamias are grown along the eastern seaboard of New South Wales and Queensland, from Port Macquarie in the south, through to the Atherton Tablelands in the north. About half of the Australian crop is produced in NSW and half in QLD.
- Production is expanding most rapidly in Bundaberg (QLD) and the Clarence Valley (NSW). New plantings are also being developed in Mackay, Maryborough and Emerald in Queensland and in the Richmond Valley in NSW.
- Ownership structures are diverse and comprise a combination of family-owned orchards, first time farmers, agri-business corporates and international and joint venture investments. The scale of new plantings is increasing significantly.

Current production

- Production in 2018 was 52,900 tonnes @ 10% inshell. Total area under macadamia production is almost 25,000 ha (2018).
- Production for 2019 is forecast to be 55,000 tonnes in-shell (at 10% moisture), up 4% from 2018 levels. The kernel equivalent is approximately 18,000 tonnes.

Industry potential

- The industry is in the middle of its fastest growth since the early 1990s. There are new plantings in established regions such as the northern rivers of NSW and Bundaberg in Queensland. New plantings are also occurring in Mackay, Maryborough and Emerald (Qld), and the Richmond Valley (NSW). Bundaberg became the single largest growing region in 2016.
- The recent resurgence in new plantings has seen almost 1.5 million trees or 5,000 ha established in the last five years. There are currently around 8 million macadamia trees under cultivation. Of these, about one third are yet to reach full production.
- By 2025 about 30,000 ha will be planted to macadamias with kernel production of over 22,000 tonnes, or 70,000 tonnes in-shell. Export value is expected to exceed $400 million.
- Global demand currently exceeds supply although it is anticipated that global supply may triple in the next 7 years. Consumption is increasing as a result of increasing interested in healthy foods and an increasing awareness of the versatility of tree nuts. With planned collaborative generic demand stimulation it is anticipated that demand will continue to outstrip global supply. The biggest growth in demand is currently coming from Asia, where urban consumers in particular are focussed on health, convenience and new products.
- The in-shell market has grown from almost nothing to a third of global consumption in 7 years, and the kernel market remains strong globally. Seventy-five percent of kernel sales are in just 5 markets. Other major nut consumer markets such as Indonesia, India and eastern Europe remain as yet undeveloped.
- Macadamias currently represent around 1.5% of the world trade in tree nuts. As both awareness and production increase, the Australian Macadamia Society predicts continued growth in the industry.

Markets: present and future

- Around 20% of Australian macadamias are sold in-shell, mainly to China where consumers favour in-shell product over kernel. They are flavoured and cut to allow hand cracking with a key.
- Approximately 80% of Australian macadamias are sold as kernel. Kernel is processed for snack food lines and as an ingredient in confectionery, cereals, ice-cream and bakery products. There is also a growing market for food oil and beauty products such as moisturisers and hair care.
- The domestic market consumes about 30% of total production, 99% of which is sold as kernel.
- 7,000 tonnes of kernel were exported in 2018 and around 7.5 tonnes in-shell. This represented about 70% of total industry production and had value of $220 million.
- Asian markets are showing the greatest growth driven by increasing trade interest and consumer awareness. In the last few years new market development campaigns have supported the product in China, Taiwan and Korea.
- Consumption of macadamias is increasing in China and this market is expected to grow significantly over the next 5 years.
- Promotion of health benefits is a support driver of demand and, combined with new market penetration, is expected to underpin further industry growth.
- Consumer insights research indicates there is considerable opportunity to leverage macadamias' unique attributes to elevate products and brands and remove barriers to consumption.

Competitive advantages

- Macadamias are the only Australian native food plant to be widely traded internationally.
- Australian farms and processors have high product standards, with a demonstrated capacity to produce superior kernel.
- Through the Australian Government's National Residue Survey, the Australian macadamia industry can demonstrate 21 years of 100% compliance with all relevant standards.
- There is a strong financial commitment to domestic and export market development and on-farm research funded by a compulsory grower levy on production. The industry currently spends about $2.2 million annually on research and development and around $2.5 on marketing efforts.
- Australia holds the only natural germplasm resources for macadamias and has spent over $10 million over the last ten years on a comprehensive breeding program. The first new varietal releases from the program occurred in 2018, and early indications are that yield increases of 30% are possible.
- The industry has a strong representative body, the Australian Macadamia Society, which is driving further industry and export development.

PECANS

Being counter seasonal to the northern hemisphere means that fresh Australian pecans can be shipped into major markets in the pre-Christmas season and, importantly, in time for the Chinese New Year.

Production areas

- The majority of the Australian pecan crop is produced under irrigation in the Gwydir Valley, east of Moree in northern inland New South Wales.
- Smaller scale production extends from the Hunter Valley and Nelson Bay on the NSW Central Coast to the Mid North Coast near Kempsey, and the North Coast around Lismore.
- Pecans are also grown in Central Queensland around Mundubbera and Eidsvold and in the South East in the Lockyer Valley and south to the NSW border.
- Small plantings also exist in South Australia and Western Australia.

Current production

- The area under pecan orchards nationally is currently 1,800 ha, producing approximately 3,000 tonnes in-shell (1,650 tonnes of kernel).
- With pecan trees taking 10 years or more to reach full production there is a substantial lag time before new plantings impact crop size. After a long period of stagnation production increases are now being observed.
- Global production remains concentrated in US and Mexico which together account for 90% or more of the world crop. South Africa continues to expand production with small but significant crops also to be found in Central and South America.

Industry potential

- "Trawalla" farm, established on an original 700 ha by the Stahmann family in the early 1970s and further expanded in the years since, remains the only large-scale orchard in Australia but a number of new smaller orchards have been planted in recent years.
- These new orchards, together with recent plantings by Stahmann Farms Enterprises has resulted in close to 600 hectares of non-bearing trees that will come into production in the next five years, driving further production growth. Further pecan developments are expected in coming years, by both existing growers and new entrants to the industry.
- Pecans are extremely long-lived and remain highly productive for more than a century, making them a genuine long-term investment.

Markets: present and future

- The bulk of Australian production is sold as kernel for domestic consumption with distribution split between retail and manufacturing channels.
- Stahmann Farms Enterprises operates Australia's largest pecan processing plant in Toowoomba (QLD) from which it supplies in-shell and kernel products to domestic and international markets. Other smaller processors, including Organic Pecan Enterprises, supply mostly local markets.
- Australian pecan kernel exports find their way to all corners of the globe, from North America to Europe, the Middle East and East Asia.
- Pecans constitute less than 5% of world tree nut trade and their consumption is still mainly concentrated in the US, where they are a native nut. However, demand in Asia, Europe and the Middle East is growing. As a result, the pecan market has been strong in recent years, especially since the entry of China to the world market in the early 2000s. Although this intense new interest from China has severely limited availability of supply for other markets in recent years.
- Pecans have many marketable health benefits, among which their exceptionally high level of antioxidants (one of the highest of all natural food products) is most noteworthy. The Nuts for Life campaign continues to play an important role in bringing such benefits to the attention of Australian consumers, and it has been influential in continuing consumption growth in Australia.

Competitive advantages

- Australian pecans are harvested in the northern hemisphere off season meaning that fresh Australian product can be shipped into major markets in the pre-Christmas season and, importantly, in time for the Chinese New Year.
- The Australian pecan industry has been fortunate to remain free from troublesome scab disease which blights much of the production in the US, and innovative production techniques mean that the bulk of the Australian crop is grown without the use of chemical pesticides.
- Australia's clean and green image is underpinned by the robust food safety regimes required in Australia that are validated by internationally recognised QA systems. As a result, there is strong interest in Australian pecans by a health-conscious middle class that is increasing, particularly in our Asian region.

PISTACHIOS

Pistachio production in Australia continues to expand, underpinned by a research program that ensures the industry remains internationally competitive, effectively utilises mechanisation and requires minimal labour.

Production areas

- The major pistachio production areas are along the Murray River Valley between Swan Hill in Victoria and Waikerie in South Australia. Further plantings are in central west Victoria and Pinnaroo in South Australia.
- There are a small number of growers in central New South Wales, southern Victoria and Western Australia though these only currently produce small yields.
- A central commercial processing facility is located at Robinvale in Victoria.
- The pistachio industry includes a mix of medium-sized and smaller operations. The bulk of the crop is produced on medium-sized orchards.

Current production

- The total area under pistachio production in 2018 was 1,300 hectares.
- Australian pistachio production averages 1,800 tonnes in-shell per year (2-year average 2017/18).
- The industry is expanding, with new plantings of about 150 to 200 hectares per annum occurring over the last few years.

Industry potential

- By 2021, the area under pistachio production is expected to increase to 1,900 hectares, producing a crop of 4,000 tonnes for a farm gate value of $45 million.
- Pistachios are an attractive crop because of their hardiness in drought conditions, tolerance of poor soil and water, long tree life and resistance to common orchard pests and diseases.
- Improved orchard management and high quality processing techniques have established a profitable and sustainable industry in Australia.
- The established commercial processing and marketing facility in Robinvale has allowed growers to concentrate on pistachio production and provides a mechanism for maintaining product quality.
- Pistachio production in Australia is fully mechanised, requiring minimal labour and ensuring international competitiveness.
- Existing processing facilities have the capacity to efficiently process the expected increase in production in the near term.

Markets: present and future

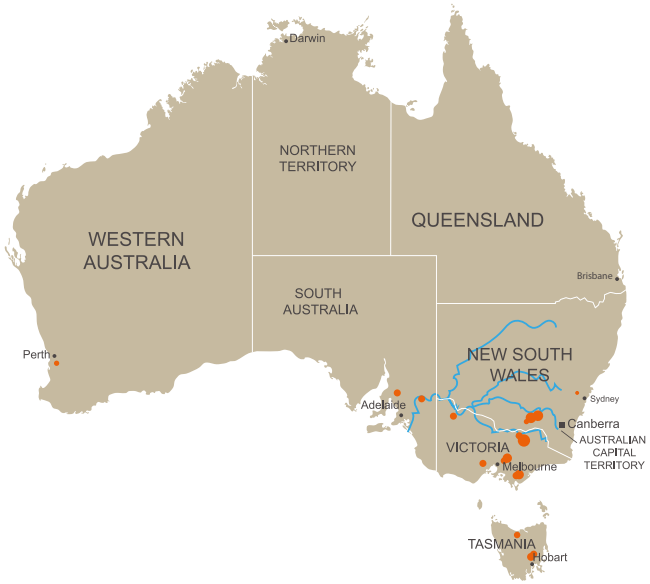
- There is significant potential for increasing production in Australia to meet domestic demand. Australian consumption of pistachios is currently 3,500 tonnes a year, and has been increasing at 9% a year (compound) since 2000 (2018 data). About 50% of this domestic demand is currently met through imports.
- Furthermore, the demand for pistachios is increasing globally, and in Australia, because of increased awareness of the health benefits of including 30 to 50 grams of nuts in the daily diet.
- Pistachios are mainly consumed as a snack food, which is a market sector that is currently growing in western countries. Consumption of snack foods is also increasing in developing countries in tandem with disposable incomes.
- There is also now a rapidly increasing market for pistachio kernels in the baking and food services sectors.

Competitive advantages

- Australian pistachios are harvested fresh during the northern hemisphere off-season.
- Over the past 20 years the Pistachio Growers' Association Inc (PGAI) has led the development and administration of a wide range of research projects funded by industry and matching funds from the Australian government through Hort Innovation. The outcomes of these projects have been significant for the existing 50 pistachio growers, but of greater significance in the development of a new horticulture option for the River Murray Valley. By improving the economic performance of existing pistachio orchards, proof of viability has been shown to other farmers, leading to an expansion of the industry.
- In 2003 the Australian pistachio industry established a Pistachio Research Field Officer position and program with the financial support of the Australian government through Hort Innovation. Over the past 15 years the program has undertaken world quality research, particularly related to the Australian bred variety 'Sirora'. This research is enabling Australian producers to achieve some of the highest productivity globally.
- Pistachio crops in Australia are less troubled by pests than they are overseas. Lower chemical use reduces the cost of production and facilitates the clean, green image of its agriculture.
- Pistachio farming is capital intensive, ensuring that Australia can compete with lower wage cost producers such as California and Iran, the two major suppliers of pistachios.

WALNUTS

The Australian Walnut industry continues to expand its production with new orchard developments, with traditional in-shell Northern Hemisphere export opportunities complimented by increasing domestic consumption.



Production areas

- The Australian walnut industry has grown significantly in recent years due to growth in the establishment of large-scale commercial plantings. Major production areas are on the east coast of Tasmania, the Goulburn Valley near Shepparton and the Murray Irrigation area near Kerang and Swan Hill in Victoria and in the Riverina (near Griffith and Leeton) in New South Wales.
- Small scale orchards are scattered in the Ovens Valley, Gippsland and Central region of Victoria, Southern Highlands and Central Tablelands of New South Wales, the Adelaide Hills and Riverland regions of South Australia, and in south-west Western Australia.
- The Australian industry is a mix of small, older orchards and new, more extensive orchards. Most orchards are family operations, but the majority of area under cultivation is managed as large non-family enterprises.

Current production

- The production of Australian walnuts in 2018 was in excess of 11,700 tonnes in-shell. Farm-gate value was $55 million and the export value approximately $25 million.
- Close to 3,600 ha of mature and developing walnut trees were under cultivation in 2018. This number is expected to rise to 4,300 ha by 2021 as existing growers expand their orchards and new growers enter the industry. This expansion is expected in both existing and new regions.
- Webster Limited is Australia's largest walnut grower, owning and/or managing more than 3,000 ha of orchards. When mature, these orchards are expected to produce over 18,000 tonnes in-shell per annum.

Industry potential

- Investment in new orchard establishment continues through both current enterprises and new entrants. Orchards established in the last five years have provided a firm base on which to further develop the industry.
- New varieties and improved propagation, along with better orchard management and irrigation techniques have reduced time to bearing and increased nut yield.
- Australia is in a favourable position for walnut production across the southern hemisphere because of the suitability of climatic conditions, water, soil types and topography and capital raising ability.
- Factors that encourage investment in Australian walnut production include:
  - the absence of most walnut pests and diseases in Australia;
  - the fact that walnuts are wind pollinated;
  - continuing strong global demand for walnuts; and
  - solid sustained growth in consumption, largely driven by the increasing awareness of the health benefits of walnut consumption.

Markets: present and future

- Annual domestic consumption of walnut is currently 600-800 tonnes in-shell and 4,900 tonnes of kernel (roughly 9,000 tonnes in-shell equivalent).
- Locally produced walnuts now supply total domestic in-shell demand. Australian in-shell walnuts are sought by the domestic market because of their superior flavour and freshness compared to imported product.
- Most in-shell walnuts are sold through fresh produce markets and farmers markets. Walnuts are also sold through major retail chains and into the bakery and confectionery industries.
- Demand for kernel is increasing as consumers move towards year-round kernel consumption rather than seasonal walnut in-shell consumption.
- Several cracking facilities are currently operating, along with a new state-of the-art cracking facility commissioned at Leeton in New South Wales in 2014.
- Demand is strong for good quality Australian walnuts in export markets, with about 55 – 60% of Australia's walnut production currently being exported.
- Global growth in demand for walnuts has been maintained since 2011. World consumption has been increasing at a steady rate of around 4% per year. This is expected to continue with the continuing awareness of the health benefits of nut consumption. Markets are also increasing due to growing middle classes consuming more healthy foods. Domestically, appreciation for locally grown foods has increased, helped along the way by new 'country of origin' labelling laws.

Competitive advantages

- Australia is a reliable exporter of off-season walnuts to the northern hemisphere.
- Australia is free from many walnut pests and diseases affecting other countries, so chemical use is low in Australian walnut production.
- Free Trade Agreements have also assisted with some growth into participating countries, breaking down some of the barriers to new market development.

Who is the Australian Nut Industry Council?

The seven Australian tree nut industries (almond, chestnut, hazelnut, macadamia, pistachio, pecan, walnut) voluntarily come together under the Australian Nut Industry Council (ANIC). ANIC works to deliver efficiencies to the industry in areas of commonality and collective action throughout the supply chain. Through ANIC, the nut industries work together, sharing resources, experience and ideas to advance the industries and promote the benefits of Australian-grown nuts.

Members:

Almond Board of Australia
Australian Pecan Growers Association
Chestnuts Australia Ltd
Pistachio Growers Association Inc
Australian Macadamia Society
Australian Walnut Industry Association
Hazelnut Growers of Australia

Presented by:

Eric Siegers, ANIC Executive Officer
112 Burke Street
Wangaratta, VIC 3677

P: + 61 419 889 528
E: exec@nutindustry.org.au