



AUSTRALIAN
MACADAMIAS

The world's finest nut

2018 YEARBOOK

AUSTRALIAN MACADAMIAS

Macadamia Yoghurt Tropo-Pops:
An entry from the world-first
Macadamia Innovation Challenge

AUSTRALIAN MACADAMIA INDUSTRY THRIVING AMID RECORD EXPANSION

2018 has been a year of record growth for the Australian macadamia industry. Expansion is occurring across all growing regions, including relatively newer areas such as Emerald north of Bundaberg and Yamba south of Ballina. There is also investigative planning occurring in other regions such as the Northern Territory.



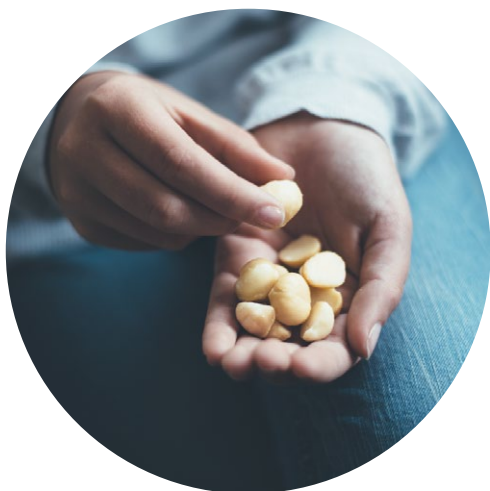
Cane land conversion continues to be the largest source of new plantings. The New South Wales Northern Rivers is experiencing growth primarily from new growers, while further north in Bundaberg, growth is split evenly between new growers entering the industry and expanded plantings by existing growers.

Automation-readiness is a hallmark of the current growth phase, with almost all new plantings set up by GPS. This will ensure growers are prepared for the increased automation that will be implemented in orchards over the next five to 10 years, with technology such as tree shakers expected to become standard in all new orchards.

The short-term growth in processing demand is being comfortably accommodated by the industry's existing processing infrastructure. Investment in new handling and processing facilities is now being planned, as well as value adding investment and workforce upscaling to ensure optimum processing capacity for the Australian crop in the medium to long term.

Australia's reputation as the most consistent producer of the world's best macadamias is set to continue. Our industry's commitment to continual improvement of our already-high standards is unwavering as we strive to surpass the expectations of major food manufacturers and consumers around the world.

With substantial innovation in our industry's growing and processing practices, and continued investment expected to improve the scale achieved by new growers, the Australian industry is on track to meet the global demand for macadamias in a way that has never been seen before.





AUSTRALIA'S MACADAMIA INDUSTRY IN NUMBERS



\$285M

Farm-gate value



BUNDABERG

Fastest growing
region



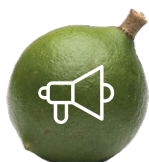
750

Growers



+\$700M

Retail value



\$2.5M

Annual investment
in Marketing



80%

Production
processed and sold
as kernel



47,500T

In shell production
2018 crop
(3.5% moisture content)



\$5M

Annual investment
in Research &
Development



70%

Production exported



25,000Ha

Under planting



30,000Ha

Under planting by 2025

COMMITTED TO CONTINUAL IMPROVEMENT

The Australian macadamia industry's commitment to continual improvement delivers consistent and increasing production, ground-breaking innovation, outstanding quality, and long-term sustainability.

FOCUSED ON PRODUCTIVITY

New orchard management practices are driving productivity to help meet growing demand.

Integrated orchard management (IOM):

Integrated management of canopy, orchard floor and drainage

Integrated orchard nutrition (ION):

Increasing organic matter to achieve the right nutrient balance and optimise soil moisture

Integrated pest management (IPM):

Simultaneous management of multiple key pests using a number of different techniques

Several innovation projects are laying foundations for further growth to ensure our industry remains at the forefront of world production. These include the Small Tree High Productivity initiative that aims to boost crop yield per hectare, advances in pollination, and a 20-year \$10 million breeding program that will see trees bred for better yields, higher pest and disease resistance and more manageable canopies.

LONG TERM GLOBAL MARKETING STRATEGY

The Australian macadamia industry is 12 months into a three-year international marketing strategy, designed to drive steady growth in global demand as more robust supply becomes available. The centrepiece of our strategy is the Innovation Initiative - a major investment that is helping food manufacturers embrace macadamias as an ingredient in their innovation pipelines with surety and confidence. It has delivered a suite of dynamic marketing activity including:



World-first Macadamia Innovation Challenge:

Professionals and students from the food technology field submitted creative concepts for new packaged food products using macadamias, many of which are now available for adoption by interested food manufacturers and product developers globally. A second Challenge will be completed in early 2019.



New global food and beverage trends revealed:

Commissioned research identified five key macro trends set to shape the food and beverage landscape in both Asian and Western markets over the coming years, unearthing fertile territory for macadamia innovation.



Bakery category consumer insights research:

New consumer research revealed fresh insights that highlight key innovation opportunities for macadamias in the bakery category in both Asian and Western markets.



Snack category consumer insights:

New consumer research revealed macadamias are perfectly placed to meet consumers' emotional snacking needs, with mood management identified as an emerging motivation for snacking with significant potential for product development.

SUSTAINABILITY AND COMMUNITY

Our macadamia growers are committed to conserving the natural resources on which our world-class product relies. Many growers have regenerated remnant rainforest on their farms to protect the natural topography and waterways of the region, creating a haven for native wildlife and insects, and improving soil health.

Our industry leads the way in biological control on-farm and encourages growers to look to organic and alternative orchard management solutions. 100% of the harvested nut is used, with nothing going to waste.

We support the local communities in which our industry operates by sponsoring local food festivals, speaking at local schools and working with community groups to protect endangered species like the koala.

PREMIUM QUALITY AND FOOD SAFETY

Food safety is a top priority for Australia's macadamia industry. Our approach is underpinned by sophisticated production processes, generations of knowledge about quality on farm and in factory, a commitment to biological pest control, and Australia's reputation as a clean and green environment. We were the first macadamia producer to implement rigorous quality standards and testing protocols that remain unmatched by any other producing region. All processors are HACCP accredited and most have further quality management systems. Our standing as the producer of the world's most pristine macadamias is validated by the results of the Australian Government's National Residue Survey, a program that screens Australian crops for a range of chemical pesticides and environmental contaminants.

COMMITTED TO CONSERVATION

The Macadamia Conservation Trust is a not for profit registered environmental organisation. The Trust aims to conserve remaining wild macadamia trees in their native habitat for future generations. It helps to fund Wild About Macadamias, a project that conserves and protects local wild macadamia species that are under threat.



AUSTRALIAN GROWING REGIONS

Macadamias are grown along the eastern coast of Australia from Nambucca Heads in the south to Mackay in the north. There are small plantings in Western Australia. Collectively Bundaberg and the Northern Rivers region produce 85% of the Australian crop.



PRODUCTION IS BROKEN DOWN BY REGION AS FOLLOWS:

BUNDABERG	NORTHERN RIVERS	GYMPIE	GLASSHOUSE MOUNTAINS	NAMBUCCA	TROPICAL QLD/ MARGARET RIVER
18,800	20,350	2,600	2,200	1,400	650
41%	44%	6%	5%	3%	1%

Table 1: Australian macadamia production by growing region for 2017. Tonnes in shell, 3.5% moisture content.
Source: Australian Macadamia Handlers Association

Australia is home to approximately 750 macadamia growers and 7.3 million macadamia trees on 25,000 hectares.

In 2018 Australia is forecast to produce 47,500 tonnes.

It is early days for the 2019 crop but so far conditions have been favourable during flowering resulting in a strong nut set. Australian macadamia trees and orchards are in good health and September delivered a pleasing level of rainfall.

Over the next two years we expect significant new plantings in Queensland and in the Clarence Valley just south of the Northern Rivers in New South Wales.

Around one third of macadamia trees currently under cultivation are yet to reach full production.



SEASON

The macadamia growing season can be broken down into three main periods:

August - September:	Flowering begins
December – January:	Nuts begin to form in clusters, their shells harden, and oil rapidly accumulates
February – August:	Mature nuts fall to the ground and are harvested with purpose-built harvesting machinery

WEATHER CONDITIONS

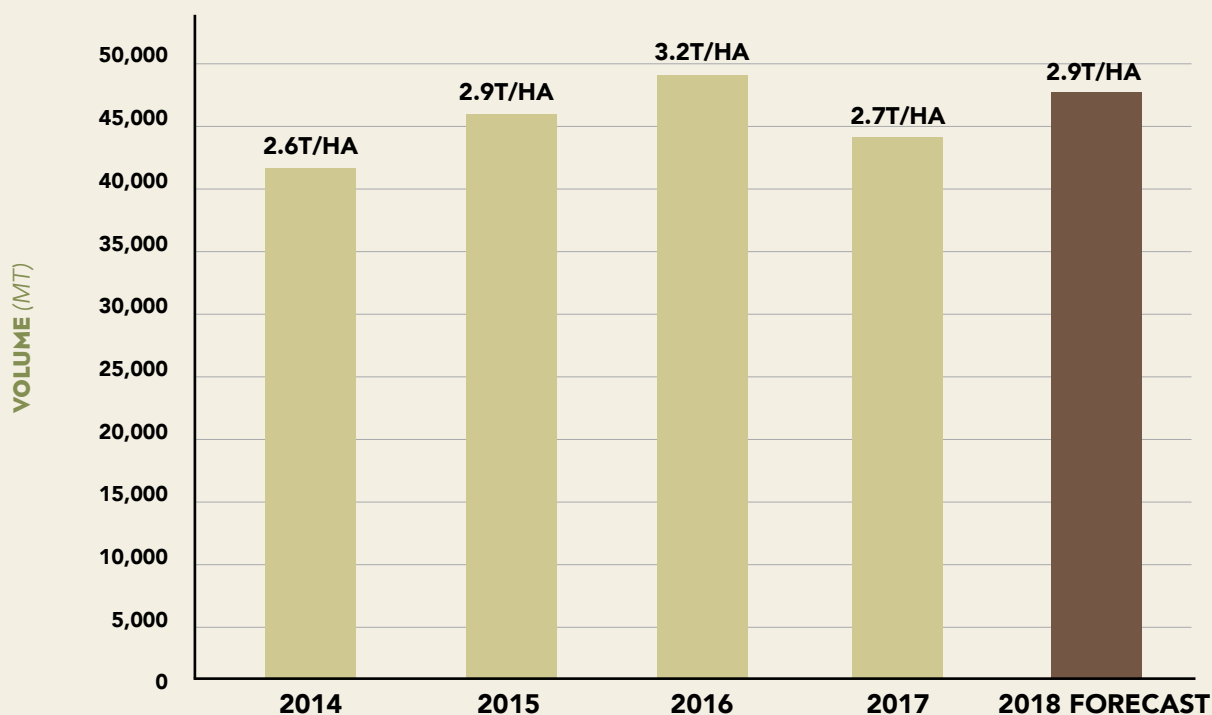
Weather conditions were very favourable during harvesting in 2018. There has been good steady rain since early September.

PRODUCTIVITY

The Australian macadamia crop has grown steadily since 2013, driven largely by sustained investment in productivity improvements. Growers have adopted new industry-wide productivity initiatives including Integrated Orchard Management and Integrated Orchard Nutrition, which are delivering better soil and tree health and higher yields. Average yields have increased from 2.6 tonnes per hectare to as high as 3.2 tonnes over the last five years with the best Australian growers achieving 6.0 tonnes per hectare.

Innovative orchard practices, coupled with substantial investment in new plantings and the establishment of large new orchards, means the Australian macadamia crop is set for consistent, steady growth in the coming years.

FIGURE 1: AUSTRALIAN PRODUCTION VOLUME (IN SHELL, 3.5% MOISTURE)

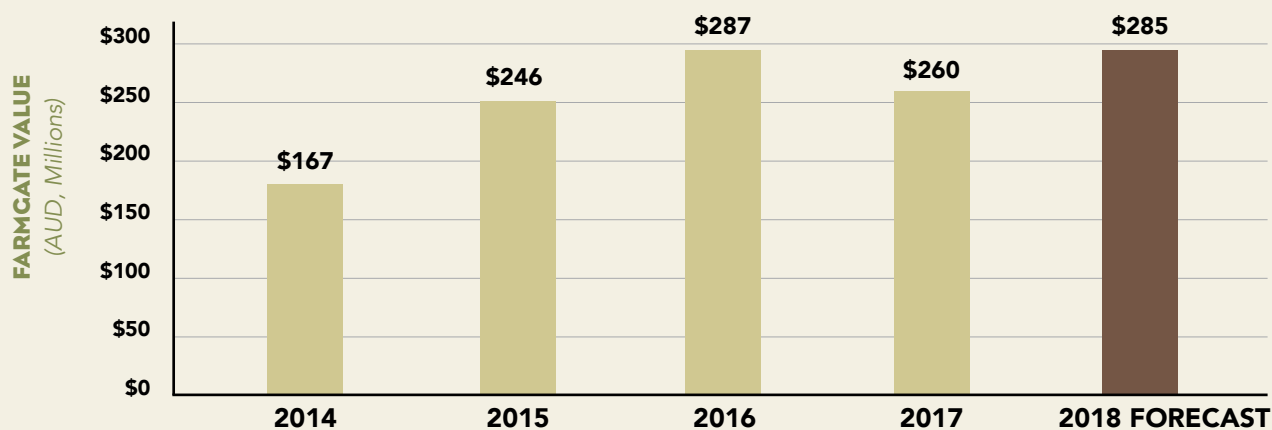


Source: Australian Macadamia Handlers Association, Benchmarking Report

AUSTRALIAN INDUSTRY VALUE

The Australian macadamia industry farm-gate value has more than doubled since 2013, translating to around AUD \$700 million at retail.

FIGURE 2: AUSTRALIAN PRODUCTION VALUE (AUD, IN SHELL)



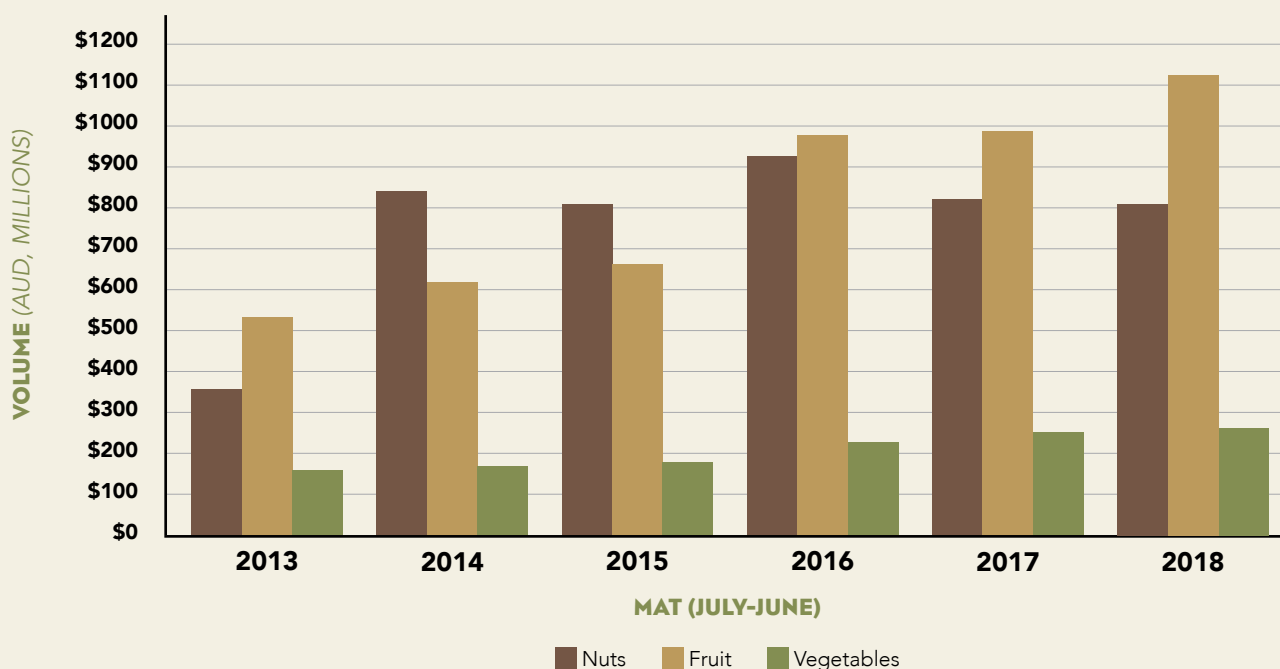
Source: Australian Macadamia Handlers Association

AUSTRALIAN NUT INDUSTRY

Nuts play a vital role in Australia's horticulture export program and their export value has more than doubled since 2013. In the 12 months to June 2018 the total export value of tree nuts was 36% of all Australian horticultural exports, with almonds and macadamias representing 88% of nuts' export value.

Growth is being driven by strong prices, an increasingly health-conscious consumer mindset and rising consumption by emerging markets within Asia. Australian nut producers have invested heavily in expanding output volume while maintaining an unwavering focus on quality. Export markets in Asia, Europe and the US recognise Australia as a source of premium quality product.

FIGURE 3: AUSTRALIAN HORTICULTURAL EXPORTS (AUD, VALUE)



Source: Australian Bureau of Statistics

GLOBAL TREE NUT PRODUCTION

In the 2017 season, world tree nut production was estimated at 3.8 million tonnes (kernel basis except for pistachios), and the forecast for 2018 is expected to reach 4.0 million tonnes, a 5.8% increase in worldwide production.

Four products account for more than 70% of total global tree nut production: almonds, cashews, walnuts, and pistachios.

GLOBAL MACADAMIA PRODUCTION

Macadamias represent less than 2% of global tree nut production. Global macadamia production is on the rise, with established growing regions continuing to grow their plantings and emerging regions, particularly China, featuring heavily in production forecasts.

Production of macadamias is currently more evenly distributed than the major tree nut varieties, with no single producer representing more than 30% of production.

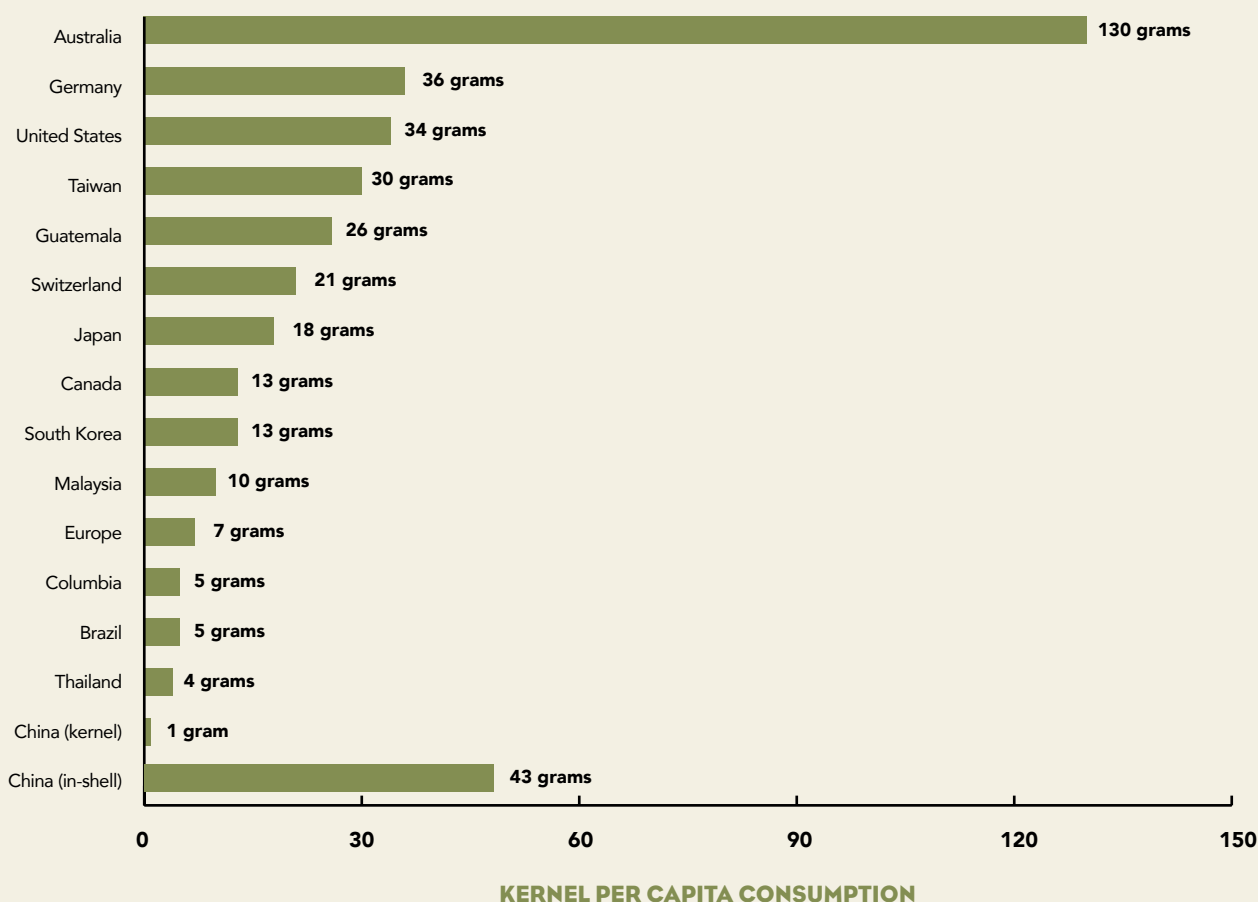
However, this has not made the supply of macadamias immune to the effect of major weather events. In 2016, South Africa experienced the worst drought in 100 years, which saw production in South Africa and surrounding producing countries fall significantly. This resulted in flat total production growth, with the impact extending into 2017.

GLOBAL MACADAMIA CONSUMPTION

Globally more than 35,000 tonnes of kernel are produced and consumed each year. Producing origins United States and Australia are the largest consumers of raw macadamia kernel, Brazil is also a large net consumer. Japan and Germany are the largest consumers of the non-producing countries and it is likely that total consumption in Germany is significantly higher once value-added products are factored in.

China consumes almost all the in shell macadamia product sold globally, estimated at 50,000 - 60,000 tonnes in shell per annum.

FIGURE 4: TOP 15 MACADAMIA CONSUMING COUNTRIES



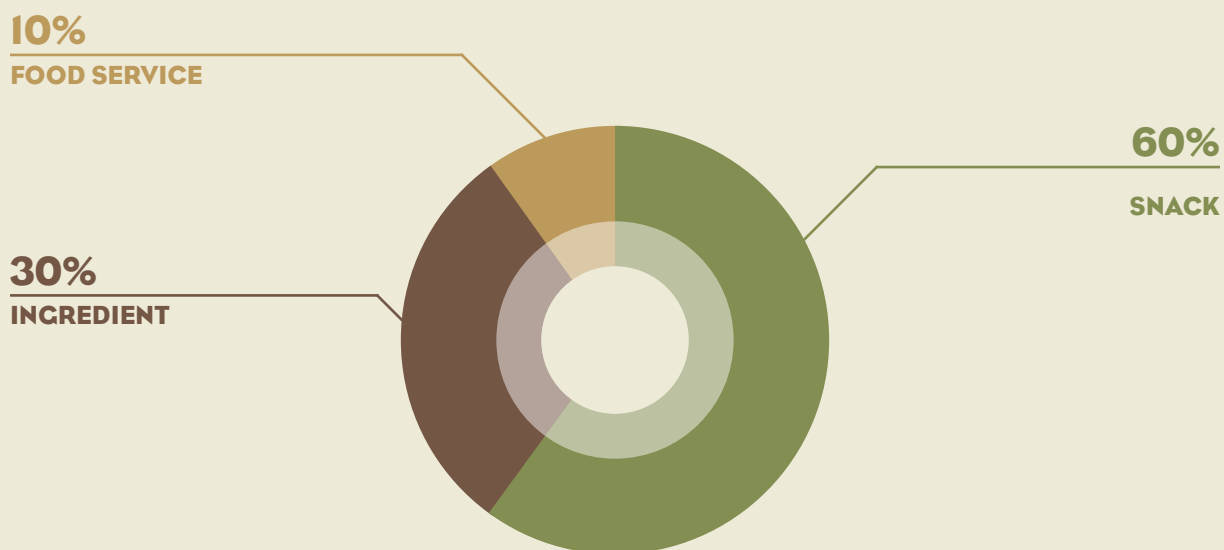
Source: AMHA, GTIS and industry estimates

AUSTRALIAN MACADAMIA SALES

In the last 12 months kernel sales represented more than 75% of Australian total sales with more than 70% of the total crop exported.

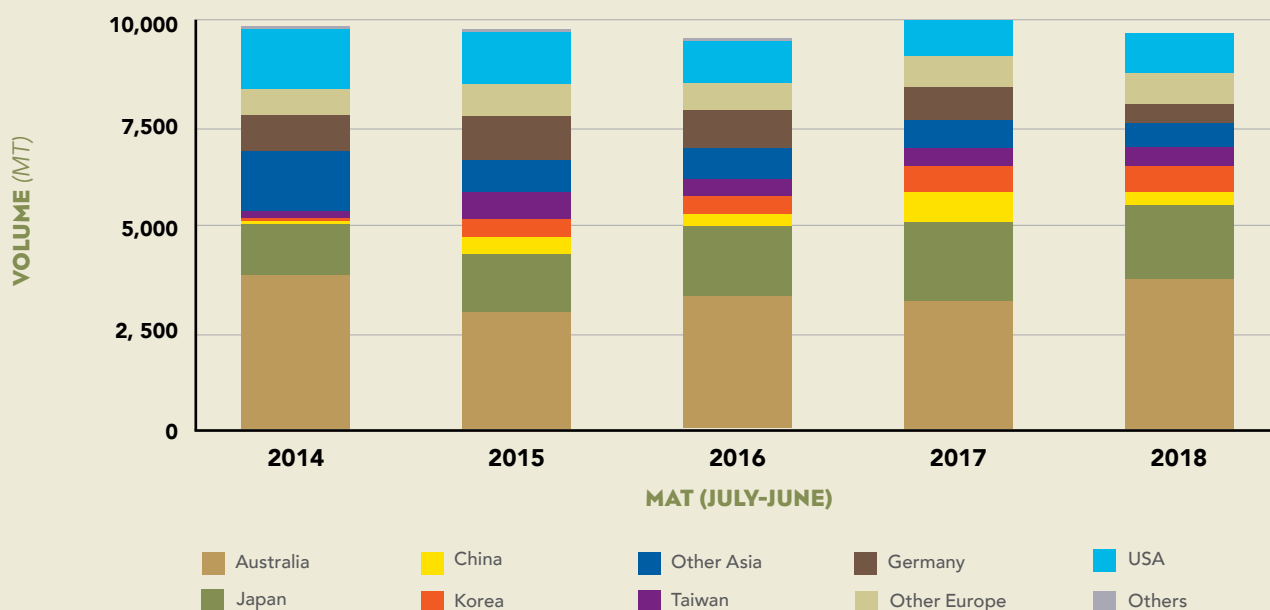
Share of total kernel sales did not change markedly, with the domestic market and Asia representing 78% of total kernel sales. In shell sales fell significantly in response to greater availability from South Africa following the 2016 drought which had driven a significant increase in Australian sales during 2017.

FIGURE 5: GLOBAL USAGE OF AUSTRALIAN KERNEL BY SEGMENT



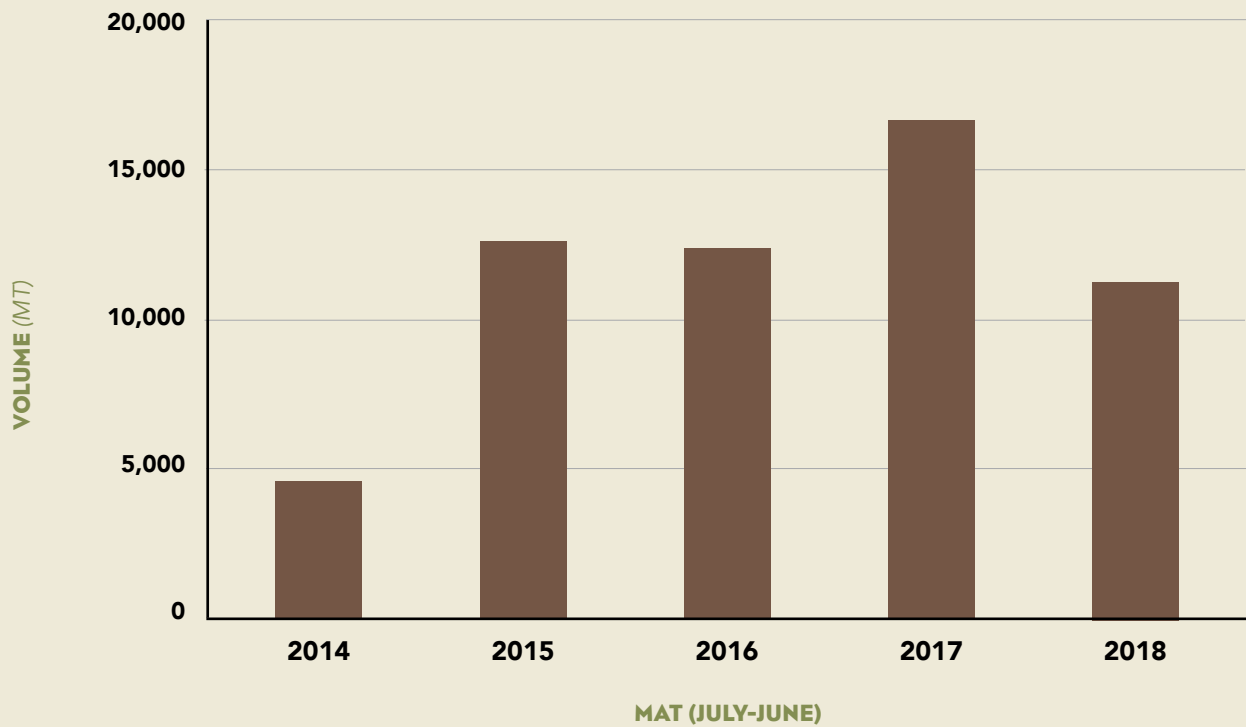
Source: Industry estimates

FIGURE 6: AUSTRALIAN KERNEL SALES BY MARKET (VOLUME) MAT



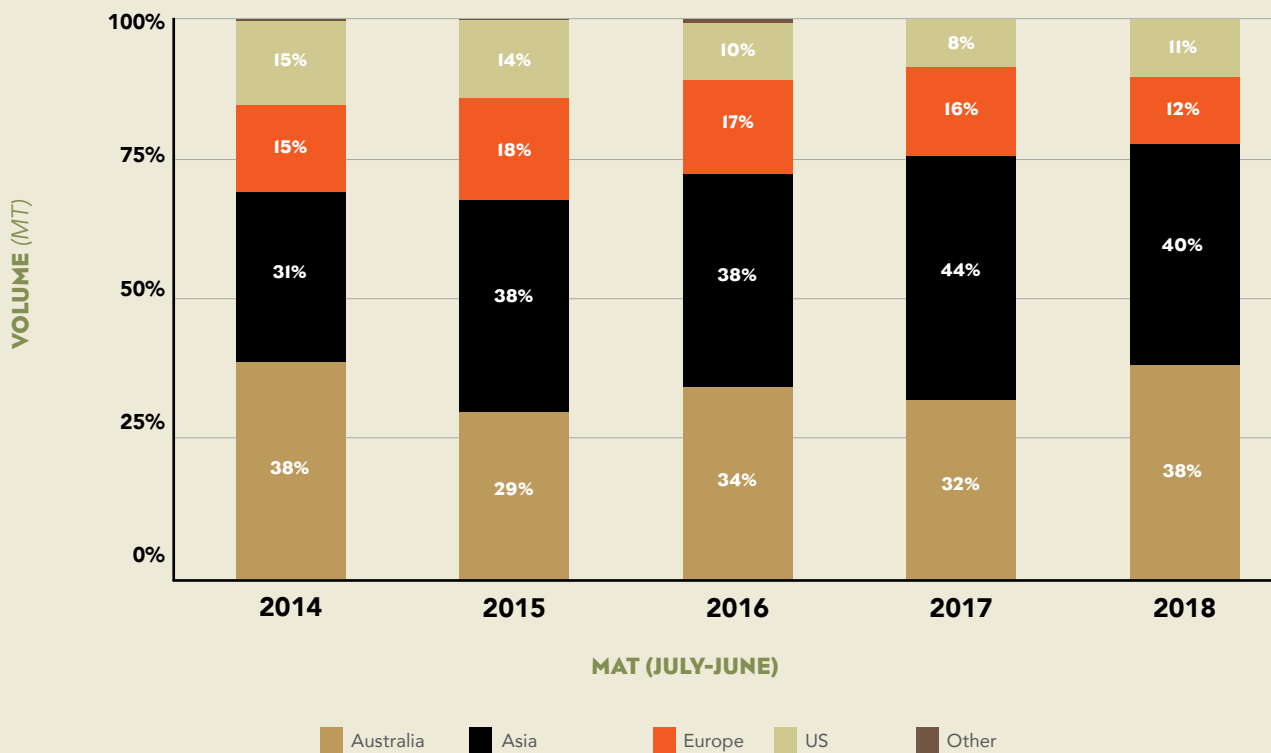
Source: Australian Macadamia Handlers Association

FIGURE 7: TOTAL AUSTRALIAN IN SHELL SALES (VOLUME AT 3.5% MOISTURE) MAT



Source: Australian Macadamia Handlers Association

FIGURE 8: AUSTRALIAN KERNEL SALES DISTRIBUTION BY REGION (VOLUME): MAT

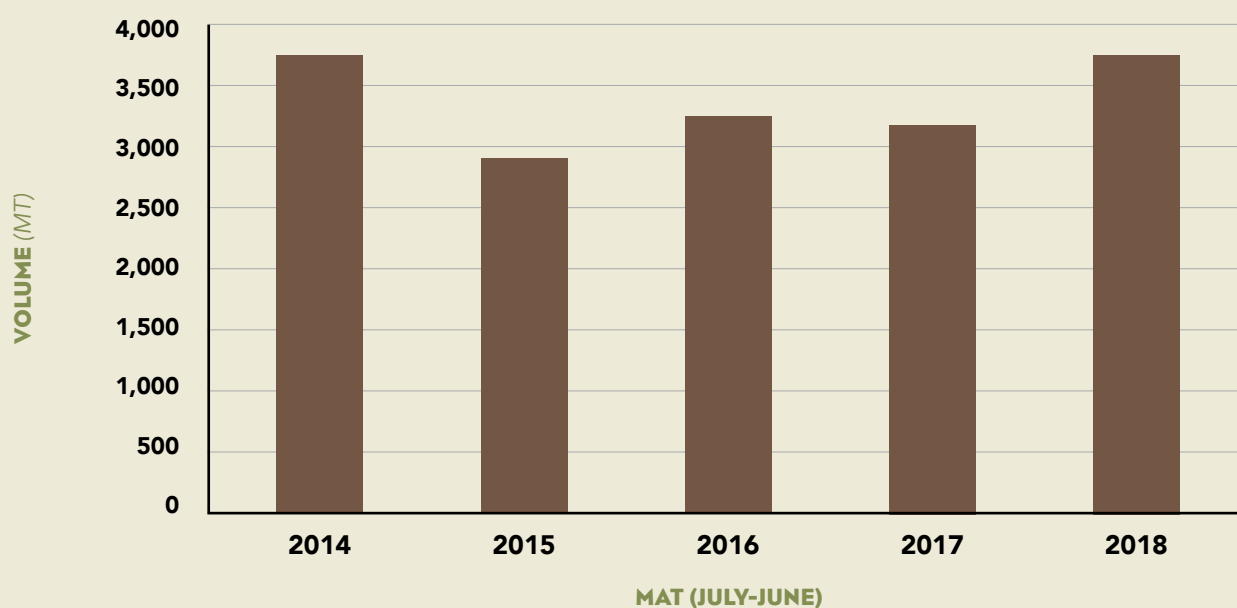


Source: Australian Macadamia Handlers Association

AUSTRALIA

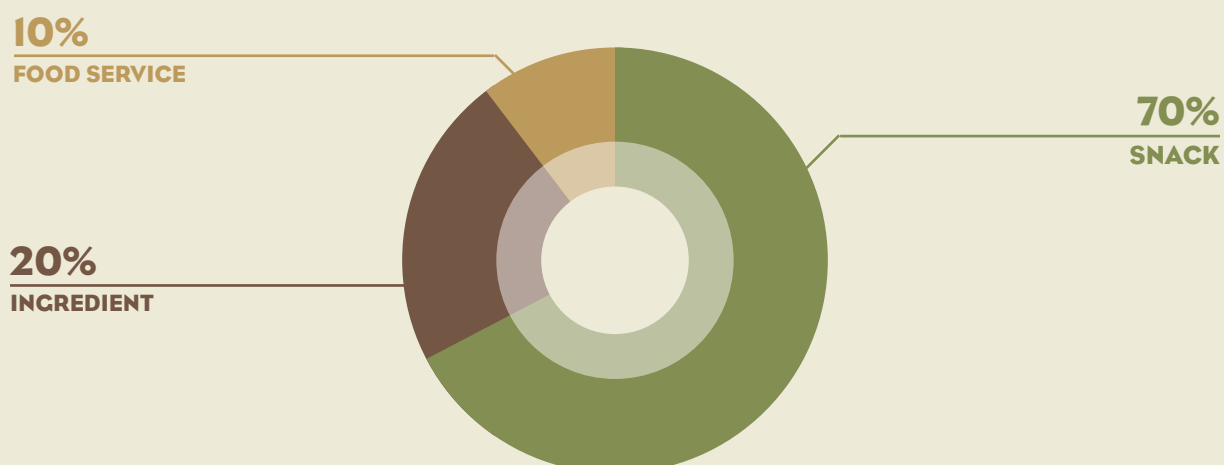
Australia is the second largest consumer of macadamia kernel in the world behind the United States and more than 95% of the kernel consumed in this market is Australian origin. Sales rose to this market over the last 12 months. Penetration into Australian households has remained relatively stable, however the number of shopping occasions has risen by 5% and dollars spent per occasion has risen by 3%. Average volume purchased per occasion was flat.

FIGURE 9: AUSTRALIAN MACADAMIA KERNEL SALES (VOLUME) TO THE DOMESTIC MARKET



Source: Australian Macadamia Handlers Association

FIGURE 10: MACADAMIA KERNEL USAGE BY SEGMENT, AUSTRALIA

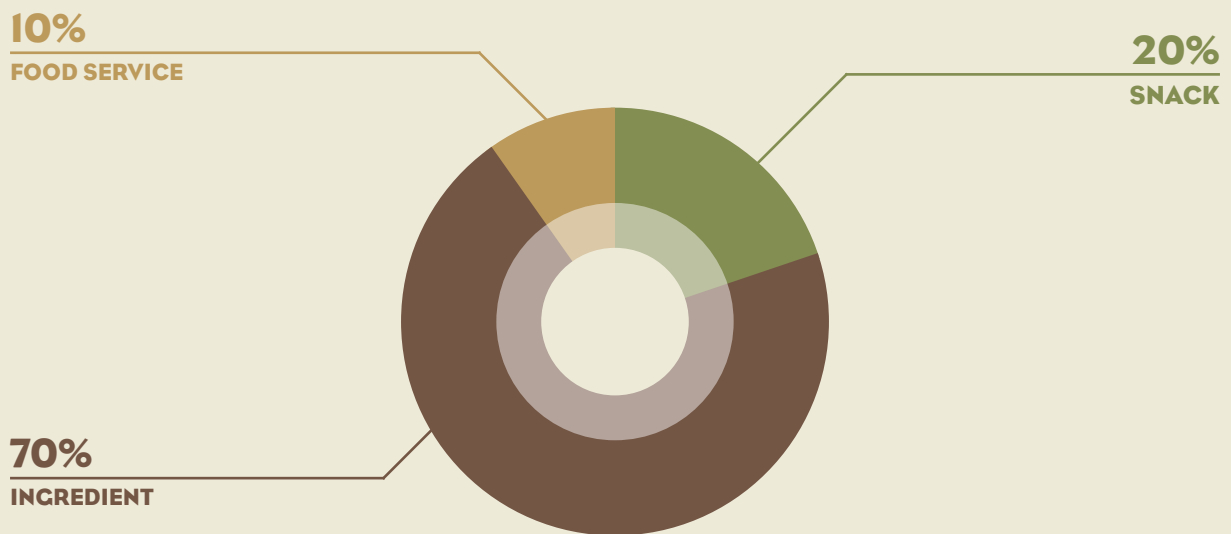


Source: Industry estimates

JAPAN

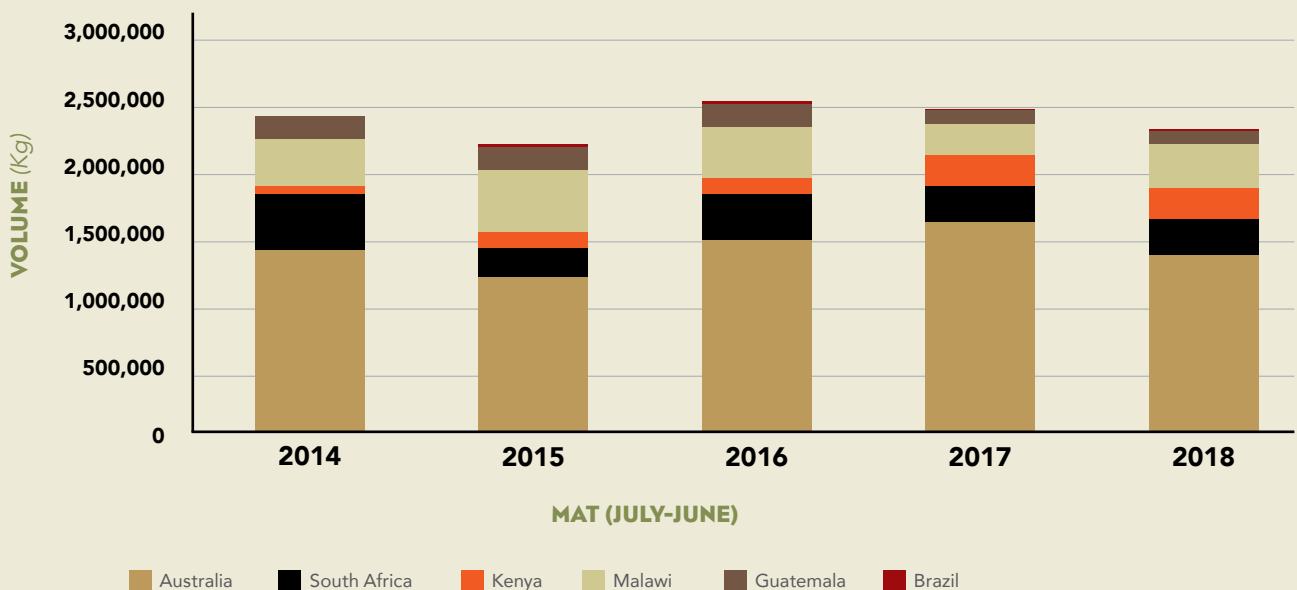
Macadamia imports to Japan in the last 12 months fell slightly. Australia continued to be the major supplier with 62% share of imports. This market is well established. Ingredient usage dominates and while traditionally this has been in confectionery, more recently it has expanded to other product categories including bakery. The use of macadamias in snack products has increased, particularly in mixed nuts.

FIGURE II: MACADAMIA KERNEL USAGE BY SEGMENT, JAPAN



Source: Industry estimates

FIGURE I2: MACADAMIA KERNEL IMPORTS (VOLUME) TO JAPAN



Macadamia kernel imports (volume) to Japan Source: Japan Ministry of Finance

CHINA

Total macadamia kernel imports to China and Hong Kong fell significantly in the last 12 months, even accounting for the incomplete data for China imports April-June 2018.

The two major origins of kernel imports, South Africa and Australia, fell by around 28% and 23% respectively. An increase in the local crop accounts for some of the decline in imports. Kernel use is still relatively low in China compared with in shell, and this segment will develop strongly in coming years.

On the other hand, total macadamia in shell imports to China and Hong Kong increased significantly in the last 12 months, and accounting for the incomplete data, the increase was significant. The biggest rise was in imports from South Africa as this crop returned to higher production following continued recovery from the drought in 2016. Australian imports were stable. Allowing for the local crop, total consumption of in shell is estimated at 50-60,000 tonnes over the 12 month period.

FIGURE 13: USAGE BY SEGMENT, CHINA

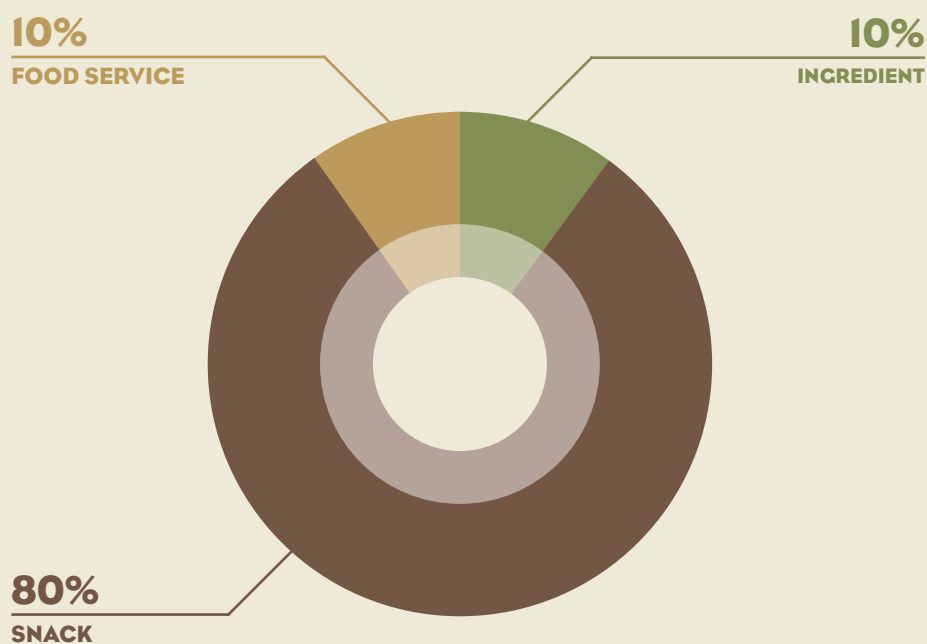


FIGURE 14: USAGE ESTIMATE, CHINA

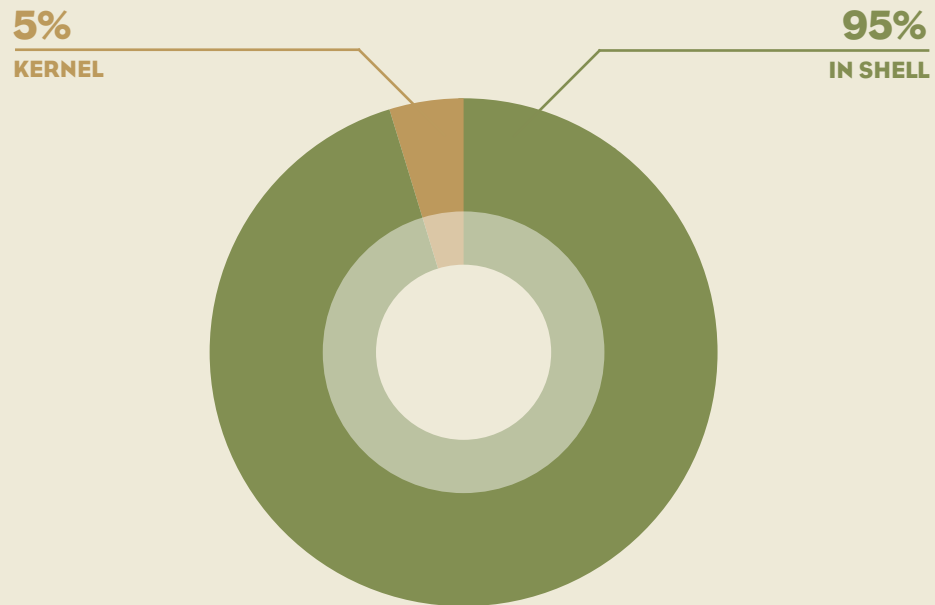


FIGURE 15: MACADAMIA KERNEL IMPORTS (VOLUME) TO CHINA AND HONG KONG (SUMMED)
NO DATA FOR CHINA IMPORTS APRIL-JUNE 2018

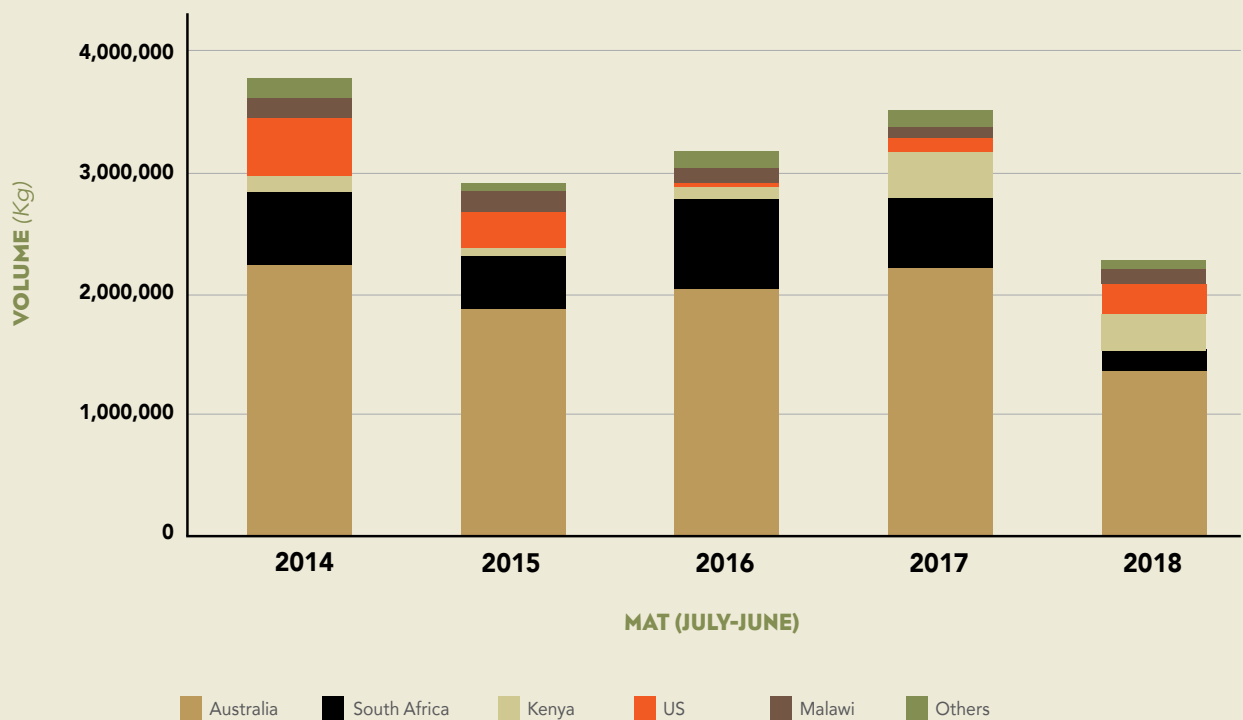
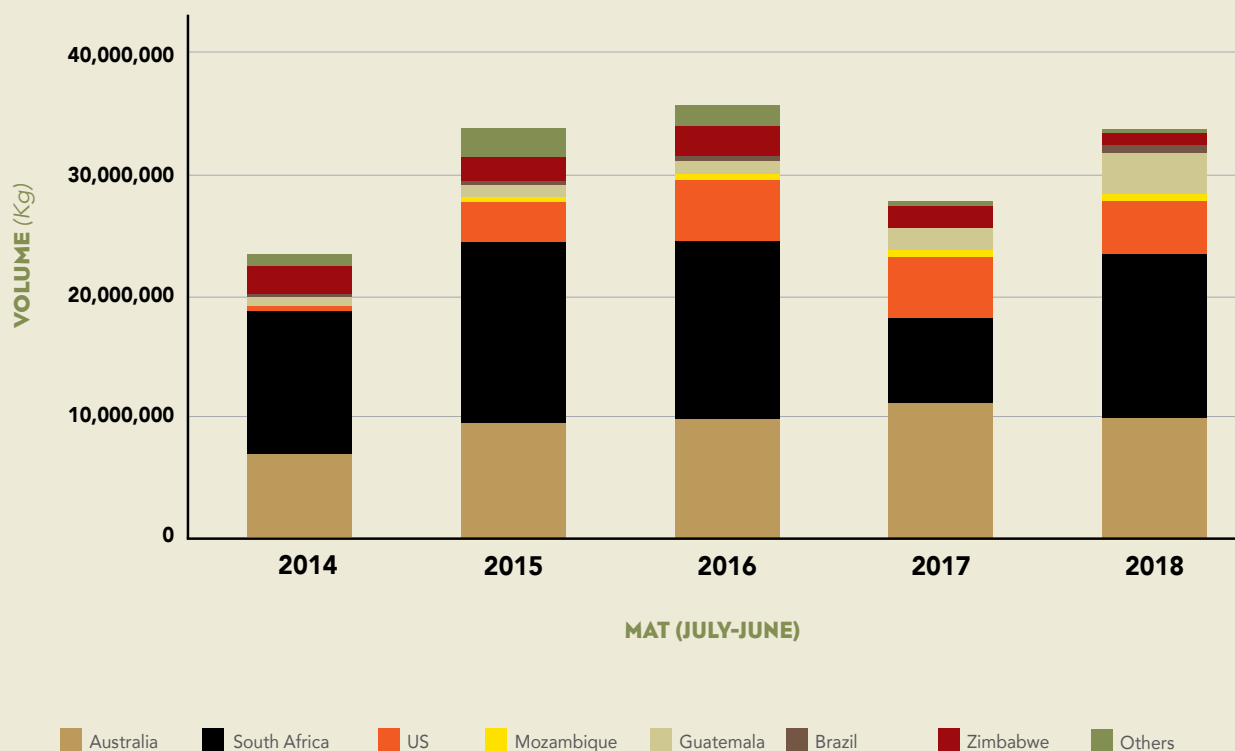


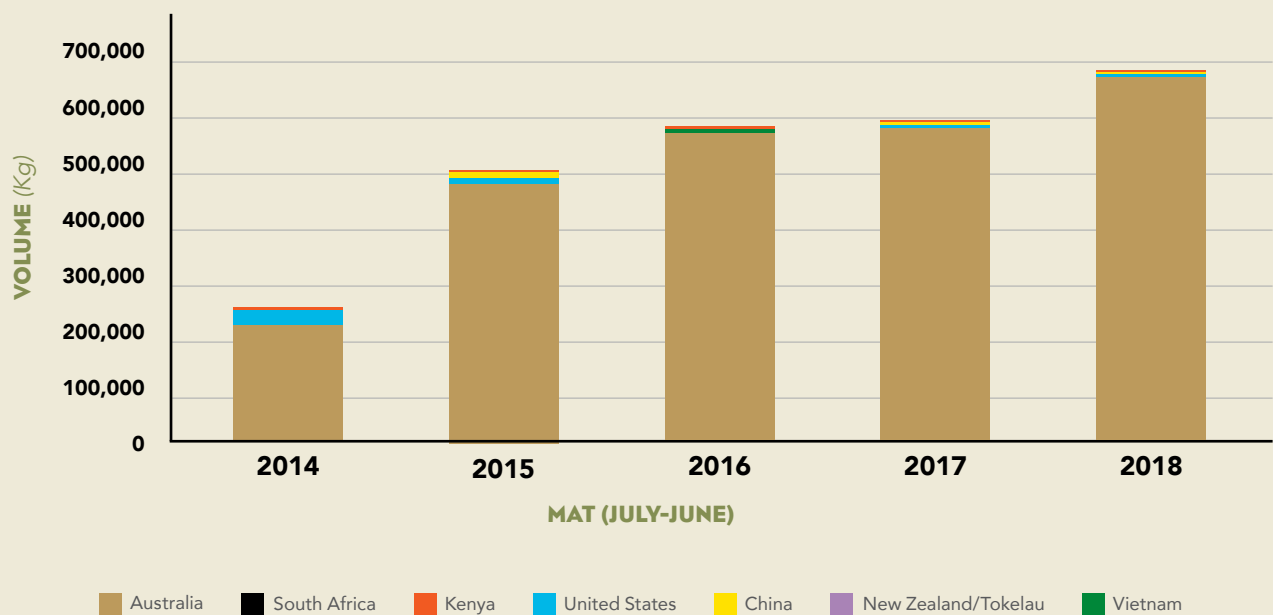
FIGURE 16: MACADAMIA IN SHELL IMPORTS (VOLUME) TO CHINA AND HONG KONG (SUMMED)
NO DATA FOR CHINA IMPORTS APRIL-JUNE 2018



SOUTH KOREA

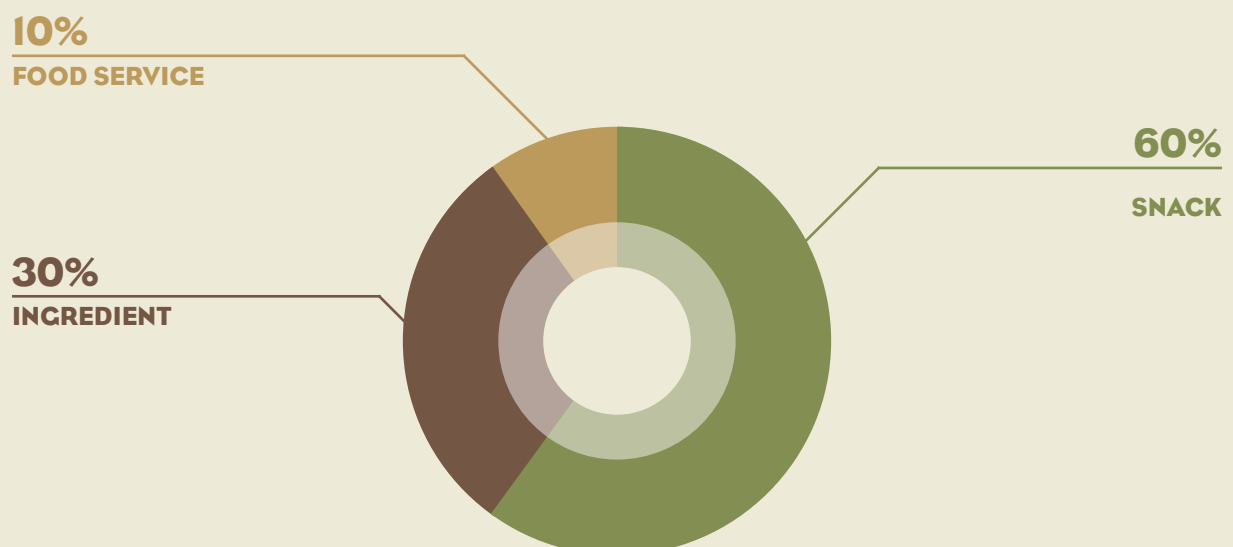
Total macadamia kernel imports to South Korea continued to rise in the last 12 months with Australia remaining the dominant supplier. Macadamias are becoming better known and there has been continued interest in new product development across several categories, including use in snacking - both straight macadamia lines and mixed nut lines. South Korea is now ranked #9 in terms of per capita consumption of macadamia kernel.

FIGURE 17: MACADAMIA KERNEL IMPORTS (VOLUME) TO SOUTH KOREA



Source: Korea Customs and Trade Development Institution

FIGURE 18: MACADAMIA KERNEL USAGE BY SEGMENT, SOUTH KOREA

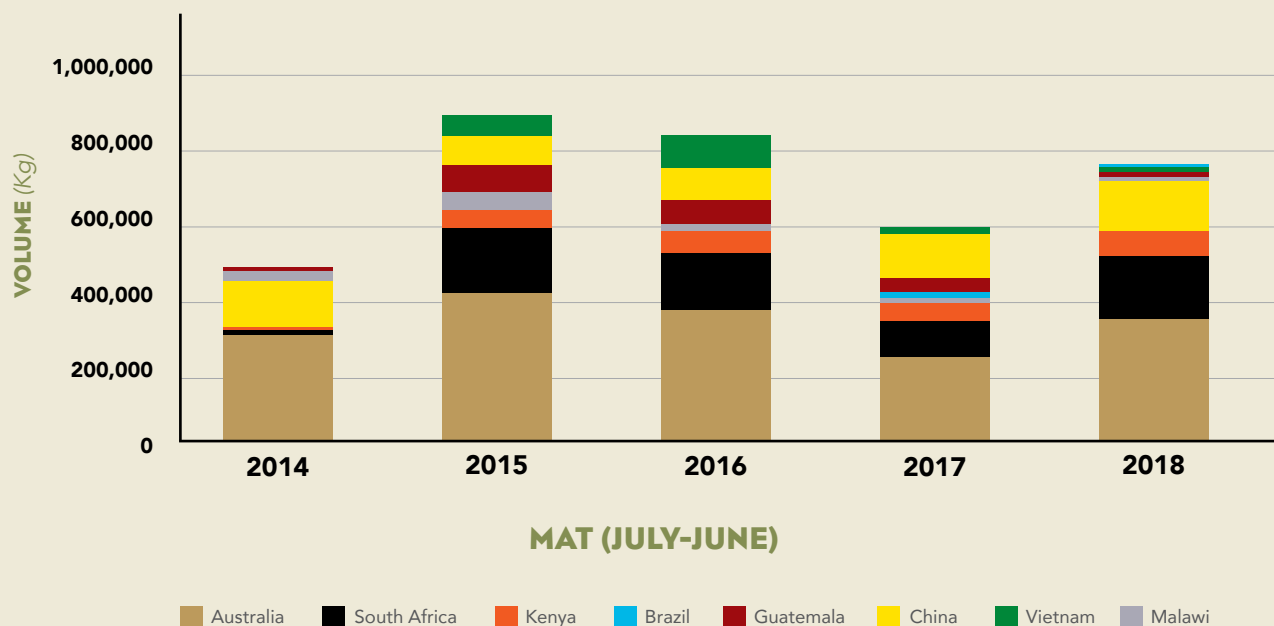


Source: Industry estimates

TAIWAN

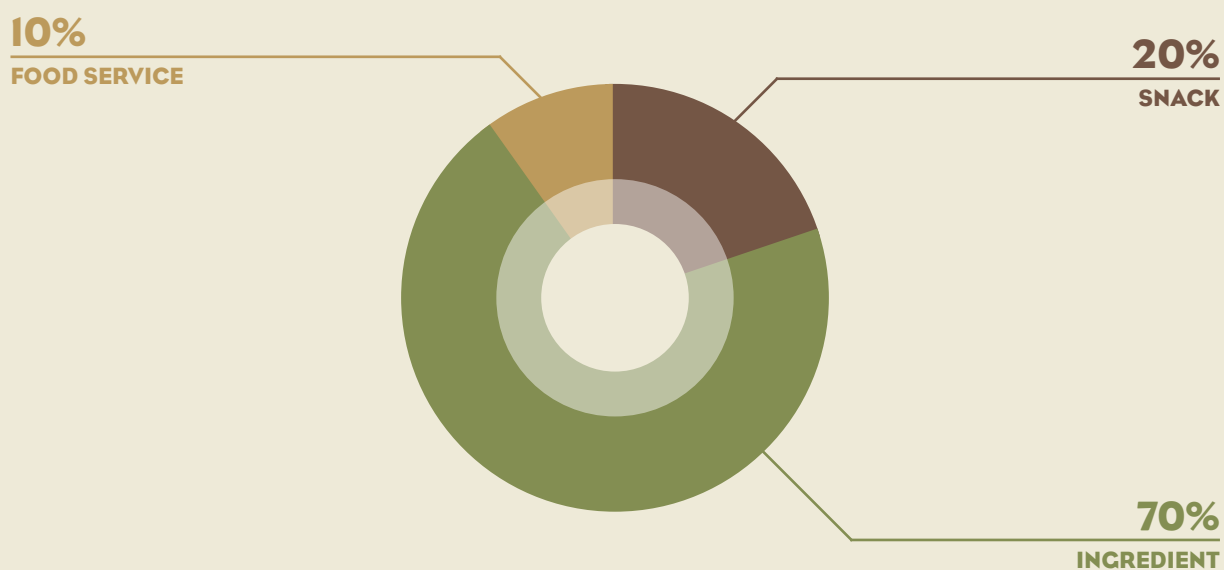
Total macadamia kernel imports to Taiwan grew strongly in the last 12 months. Australia retained a strong market share. Macadamias feature primarily in the confectionery sector as an ingredient in nougat, however there is an increasing interest in the bakery sector.

FIGURE 19: MACADAMIA KERNEL IMPORTS (VOLUME) TO TAIWAN



Source: Taiwan Directorate General of Customs

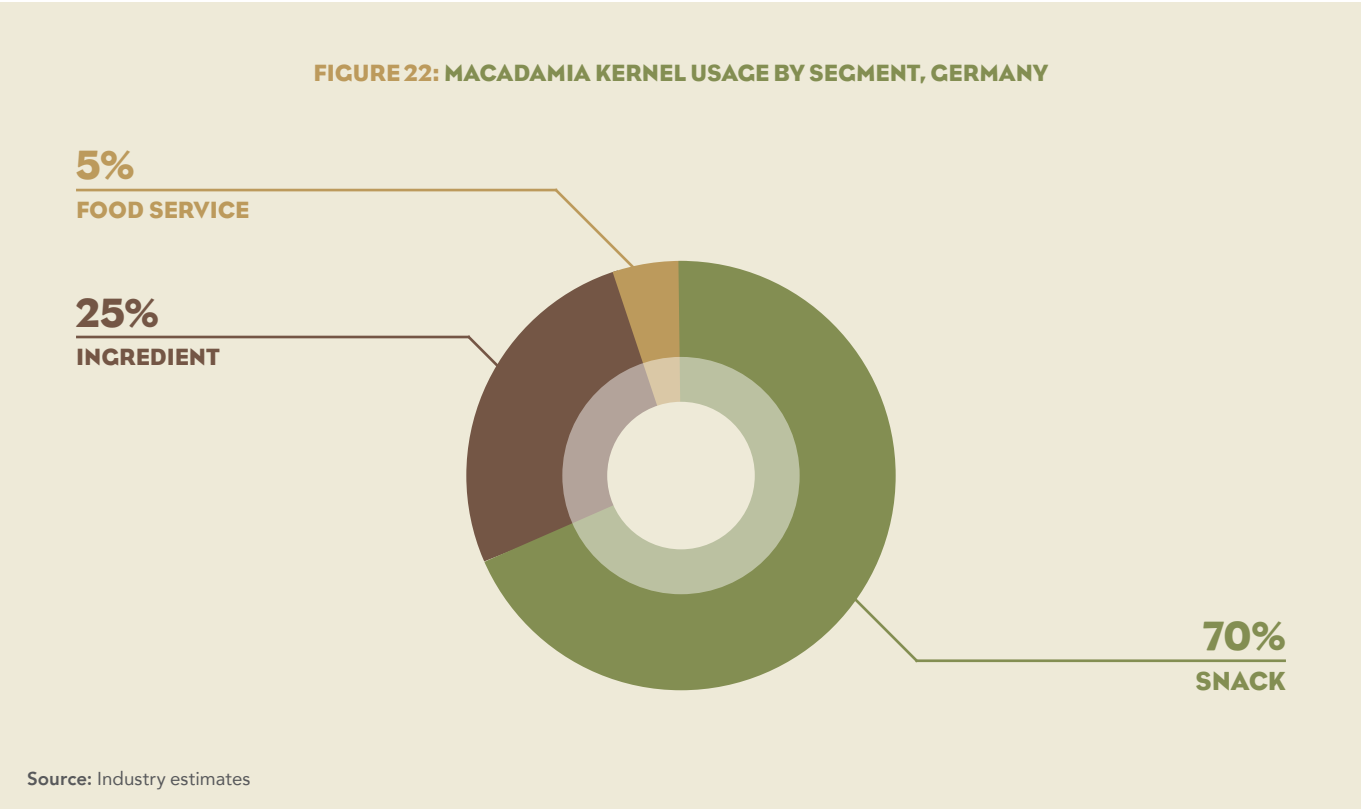
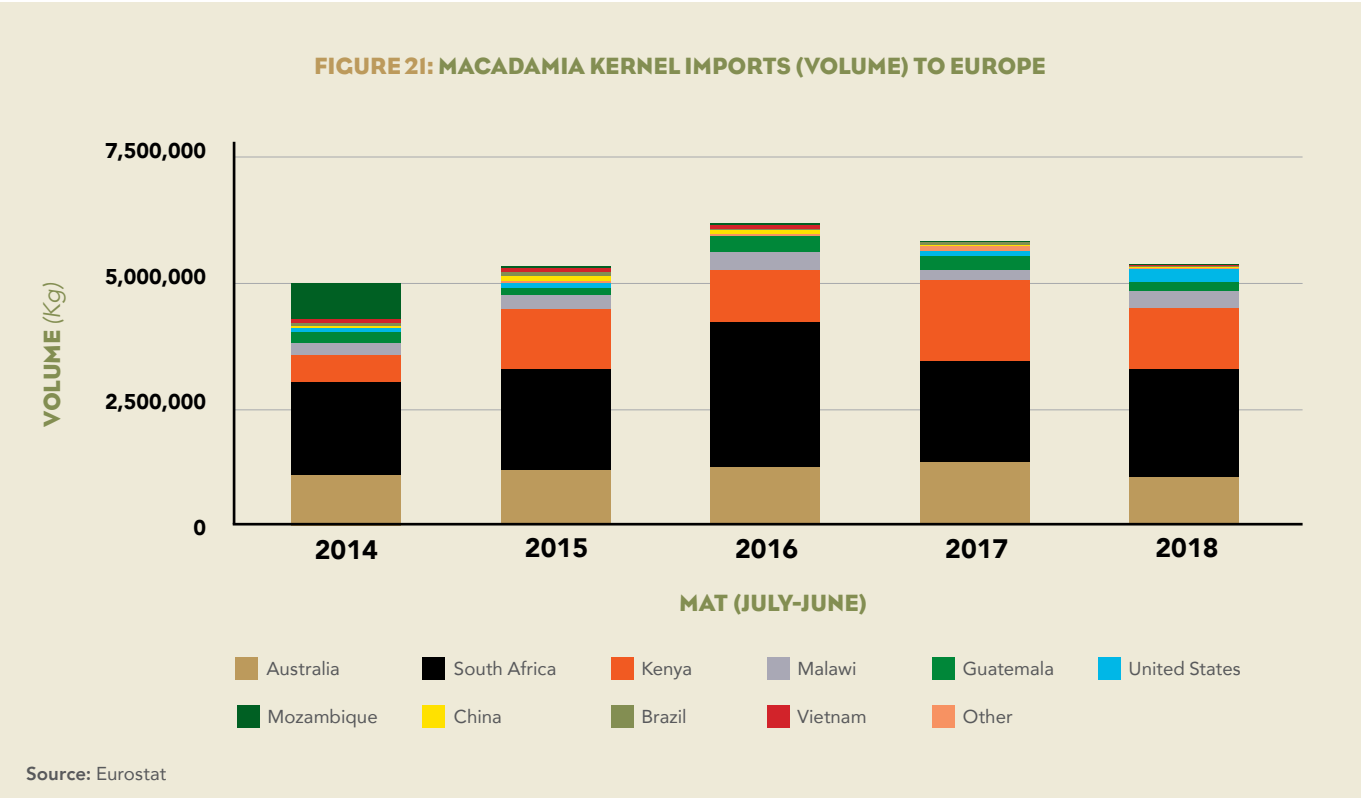
FIGURE 20: MACADAMIA KERNEL USAGE BY SEGMENT, TAIWAN



Source: Industry estimates

EUROPE

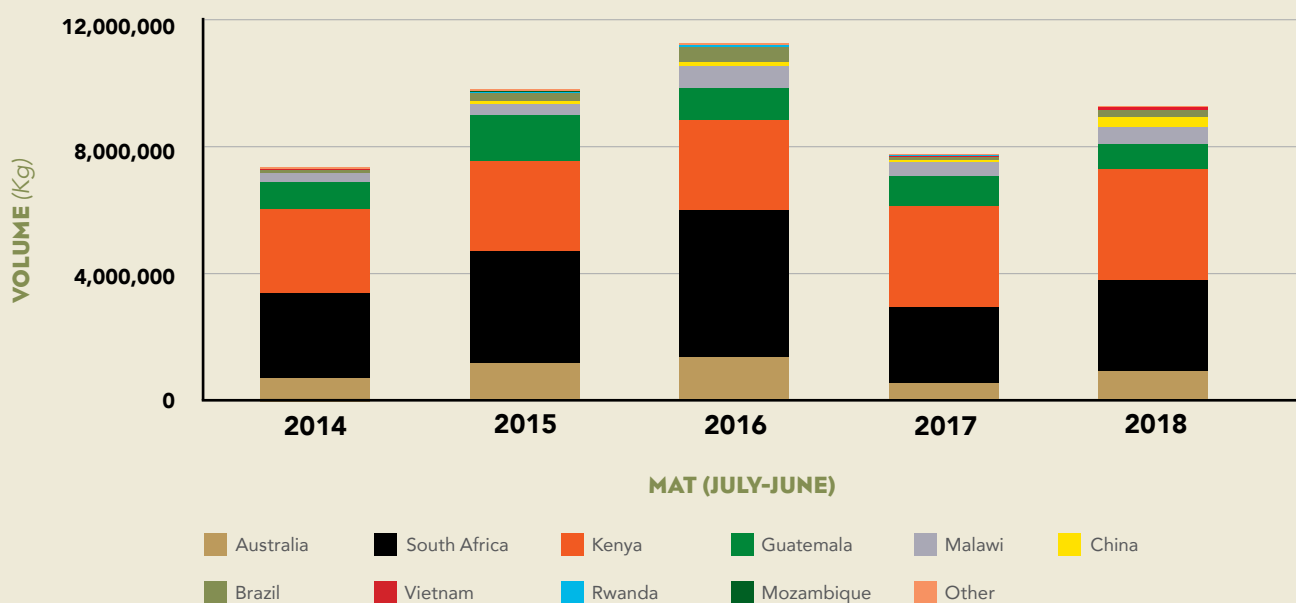
Total macadamia imports to Europe remained strong, well over the 5,000 tonne mark. Germany remains the major user but interest from other countries is expanding and more than 50% of Australian kernel is now consumed in other European markets. There is strong interest from several food categories other than snack and there has been a considerable number of new product launches using macadamia oil in personal care.



UNITED STATES

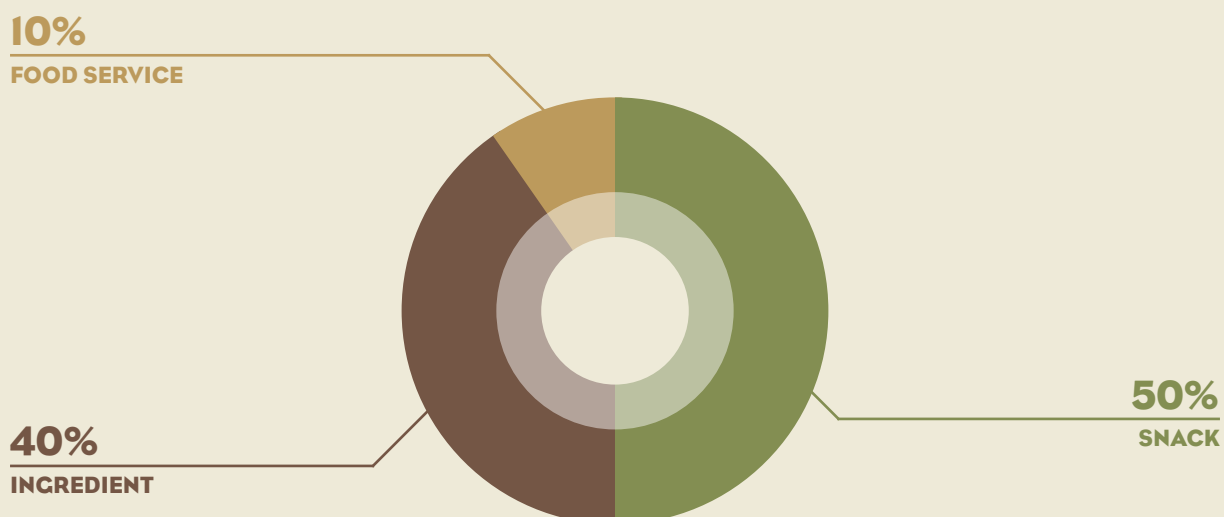
Total macadamia kernel imports to the United States increased significantly in the last 12 months returning to a more normal (historically speaking) pattern. The United States remains the single largest user of macadamia kernel and the third largest per capita consumer. There is considerable opportunity and interest in new product development ahead of expected increases in global production. The interest crosses many food categories including snack nut mixes.

FIGURE 23: MACADAMIA KERNEL IMPORTS (VOLUME) TO USA



Source: USDA

FIGURE 24: MACADAMIA KERNEL USAGE BY SEGMENT, UNITED STATES



Source: Industry estimates

HEALTH AND MACADAMIAS



Promotion of the health benefits of nuts is driving the growth of the tree nut category globally. The importance of healthy eating is increasing, and consumers are more frequently choosing nuts as a healthy snack option and incorporating them into their daily diets.

There has also been a resurgence in support for healthy fats and this has seen consumers embracing foods such as nuts, avocado and olive oil as they shift away from the low fat diet movement of previous years.

Macadamias are the 'all-round healthy nut' and contain beneficial vitamins and minerals including thiamine (B1), manganese, magnesium and potassium. They also contain plant sterols, which help reduce cholesterol reabsorption by the body, as well as antioxidants.

Nuts are high in fat and energy dense. As a result, their consumption has traditionally been restricted in diets designed to manage weight and diabetes risk. However, there is now a growing body of evidence that challenges these assumptions and instead makes a favourable case for daily nut consumption for management of weight, diabetes, blood cholesterol and heart health. Regular nut consumption has even been shown to reduce premature death from all causes by 20%¹.

A 2016 market research study² found a growing awareness of the key health benefits of nuts among both health professionals and consumers, in particular an increased understanding of the role of 'healthy fats' in nuts. The study also revealed a marked improvement in knowledge around the role nuts play in the prevention of heart disease, diabetes and obesity.

Results from Australia's Health Survey (2011-13) found Australians are eating just 6g of nuts a day on average – well short of the Australian Dietary Guidelines' recommended 30g serve. Around a 30g handful a day helps meet daily nutrient needs and maintains general health.

In 2018, the global macadamia industry launched a critical, world-first research project aimed at providing strong evidence to support the role of macadamias in a healthy diet. The global macadamia health research project is a large scale, long term randomized parallel intervention study delivered by an acclaimed researcher from Loma Linda University Medical Centre.

The first of its kind for the macadamia industry, the study will compare the effect of a diet enriched in macadamias versus a control diet on insulin resistance and insulin secretion in individuals with insulin resistance. It will assess the effect of macadamia nut consumption on lipid profile (total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides) and other emergent risk factors of cardiovascular disease as well as on central obesity and body composition.

As well as providing strong evidence to support the role of macadamias in a healthy diet, the research is expected to provide many new opportunities for the product and drive further new investment in research, with the findings due for release in 2020.

¹ Bao Y et al, Association of nut consumption with total and cause-specific mortality N Engl J Med 2013; 369:2001-11

² Health Professional and Consumer Market Research 2016, Nuts For Life

WHY CONSUMERS LOVE MACADAMIAS

Macadamias offer a powerful package of benefits that position them uniquely in the minds of consumers.



TASTE

A delicious, rich and multidimensional taste experience that is buttery, sweet and creamy

FORM

Their perfect, rounded shape makes them more aesthetically pleasing than other nuts.



TEXTURE

Simultaneously soft and crunchy, their unique texture makes for a richer eating experience.

NUTRITION

Seen as delivering more overall health benefits than other nuts, especially in relation to good fats.



MACADAMIAS ARE REGARDED AS A GUILT-FREE INDULGENCE

At a time when consumers are increasingly health-conscious, yet seeking out small daily pleasures, this is a highly appealing proposition that offers the best of both worlds.



CONSUMERS ARE PREPARED TO PAY MORE FOR THE BENEFITS THAT MACADAMIAS DELIVER

They feel that macadamias naturally add premium appeal. In fact, consumers are prepared to pay up to 10% more for a product that contains macadamias.

PROMOTION HIGHLIGHTS

The Australian Macadamias consumer promotion campaigns in Australia, Germany, Japan, China, South Korea and Taiwan have delivered a host of PR, event and social media highlights over the past 12 months.



'Celebrate Harvest' Facebook competition

AUSTRALIA

Recipes and PR from blogger outreach and partnerships



GERMANY



Macadamia Protein Balls product test and giveaway



Mother's Day recipe for Macadamia Pastry Roses

SOUTH KOREA



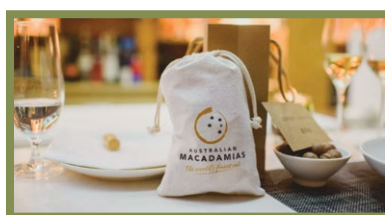
White Day Facebook activity for singles

CHINA



Chinese New Year macadamia recipe inspiration

International Women's Day campaign & private macadamia degustation competition



Macadamia oil beauty recipes

JAPAN



New Year macadamia 'Osechi' menu



Macadamia shell-cracking body April Fools' Day hoax

TAIWAN



New Year Macadamia Blessings Facebook Game



Children's Day activity

Keep up to date with our latest news by subscribing to our trade newsletter at:

[Australian-Macadamias.org/trade](https://australian-macadamias.org/trade)

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