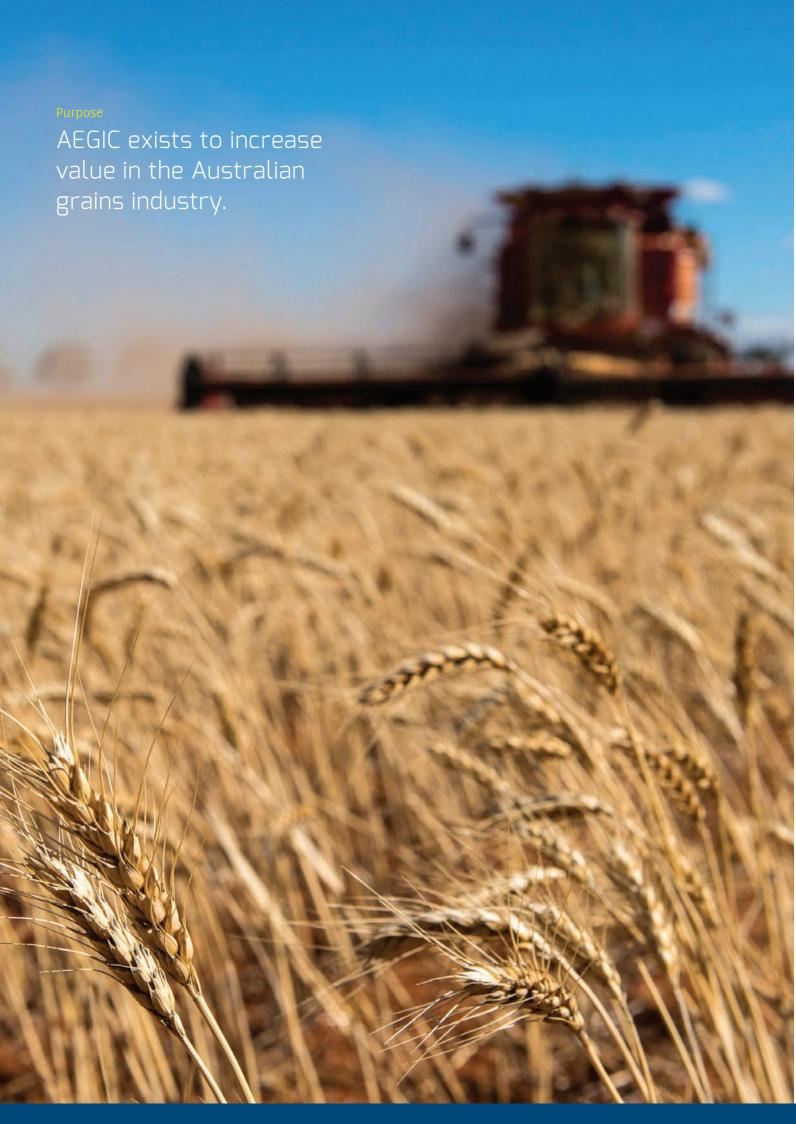


Wheat and barley markets in the Philippines

OPPORTUNITIES FOR AUSTRALIA



Contents

1	key findings	2
2	Recommendations	3
3	Introduction	4
4	Country profile	7
	4.1 Economic growth	7
	4.2 Population growth	8
	4.3 Income and consumption	9
	4.4 Urbanisation	11
5	Wheat	12
	5.1 Wheat for food	12
	5.2 Wheat for feed	15
	5.3 Wheat imports	19
	5.4 Consumption trends in wheat-based foods	19
	5.5 Future for Australian wheat exports to the Philippines	21
6	Barley	22
	6.1 Beer consumption	22
	6.2 Barley and Malt imports	22
7	Conclusions	27
8	References	28

¹ Ian Wilkinson, Economist, Department of Primary Industries and Regional Development





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1 Key findings

Population booming

With a population of over 105 million growing at close to 2 per cent annually, the Philippines is the world's 13th most populous country and one of the fastest growing countries in South East Asia.

Consumption flourishing

The median age of Filipinos is 23 years which — coupled with the estimated \$US25 billion sent home by the 10 million Filipinos living in other countries — means that consumption expenditure in the Philippines is flourishing. This is seen in the diversification of the Philippine diet, expansion of the food retail industry and an increased consumption of pork and poultry.

Strong economic growth

The Philippines economy is forecast to nearly double in size between 2017 and 2030. By 2050 it is forecast to move from 28th to 19th in world rankings based on GDP, with an average annual growth rate of 4.3%.

Urbanisation slowing

Almost half of the Philippines' population resides in urban areas. The trend towards urbanisation is slowing, affecting the rate of economic growth and potentially constraining the shift away from traditional foods and diets.

Increasing competition and reshaping of the milling industry

Transformation is underway in the Philippines flour milling industry. Intense local competition and competition from imported flour has seen flour prices drop by 20% in 2019. These factors create an environment where some of the traditional wheat buying arrangements may weaken into the future.

Feed wheat imports growing

While wheat use in food has increased steadily, mainly in line with increased population, wheat use for feed has increased far more rapidly. Feed wheat imports, mostly for feeding pigs and poultry, have overtaken food wheat imports.

An opportunity for Australian feed barley

The rapid growth of the Philippines feed market may create an opportunity for Australian feed barley. However, the Philippines has little history of using feed barley and this unfamiliarity may limit this opportunity. Demonstrating the value of Australian feed barley in feed rations will be necessary to facilitate export opportunities for Australian feed barley.



2 Recommendations



Provide education and technical services to stimulate and support demand for Australian wheat in wheat-based food products in the Philippines.

Education and technical services could stimulate and support demand for Australian wheat in Filipino wheat-based food products. While the Philippines is currently Australia's second largest wheat customer, this wheat is mostly for animal feed. Australian wheat is unlikely to have an enduring market share as a feed grain, so it is important to develop other uses of Australian wheat in the Philippine food industry.

The Philippine milling industry is currently undergoing structural change, with new mills looking to purchase market share and older mills exploring diversification options. As the market is currently in a state of transition, mills may become more amenable to education and technical services from the Australian industry.

Australia produces wheat that performs well for noodle snacks, instant noodles, and cakes and biscuits. So, despite the dominance of the US wheat in food products, there is opportunity for Australian wheat in the food market.



Provide education and technical services to stimulate and support demand for Australian barley and other grains in animal feed rations in the Philippines.

Providing technical assistance to Philippine feed users could increase awareness of the advantages of feed barley and other Australian feed grains, and may stimulate demand for these grains. The feed market in the Philippines has expanded rapidly, yet use of feed barley is relatively insignificant given a strong reliance on domestic corn. Exporting feed barley to the Philippines would lessen Australia's commercial reliance on selling feed barley to China. Having a greater diversity of market outlets for Australian feed barley is sound risk management for Australia's barley industry.

Other grains, particularly lupins, have functional advantages in aquaculture feeds and these opportunities may be worth demonstrating and developing. While these grains are likely to have only niche uses, building awareness of their benefits and supporting their use in the Philippine aquaculture feed industry may allow Australian farmers to participate in this expanding market.

3 Introduction



The Republic of the Philippines comprises around 7,640 islands in the western Pacific Ocean of Southeast Asia. The Philippines has three main geographical divisions from north to south: Luzon, Visayas, and Mindanao. Its capital city is Manila and its most populous city is Quezon City, both part of Metro Manila.

The country is bounded by the South China Sea on the west, the Philippine Sea on the east and the Celebes Sea on the southwest. It shares maritime borders with Taiwan to the north, Vietnam to the west, Palau to the east, and Malaysia and Indonesia to the south. The Philippines has an area of 300,000 km² and a population of over 100 million. It is the eighth-most populous country in Asia and the 12th most populous country in the world (Figure 1).

The Philippines has a young consumer base, with an estimated 20 million consumers enjoying rising income levels (average annual income of AU\$16,510), and a growing appetite for quality and premium imported products. Its strong population growth and rising per capita consumption of cereal, meat and horticulture products are resulting in an increasing dependency on agricultural commodity imports (Austrade, 2019).

According to Austrade, Australian agribusiness exporters represent a growing percentage of the market and are seen as a reliable source of major commodities and products. Increasingly, Australia is also seen as a provider of innovative agricultural technologies and services that contribute to enhanced productivity. Australia also acts as a strategic partner, helping the Philippines to improve its food security and strengthen its internal supply chains.

Australian agricultural exports to the Philippines are increasing, from AU\$719 million in 2016 to \$AU927 million in 2017 and \$AU941 million in 2018. The Philippines is Australia's 12th most important export market by value. Wheat is by far the main grain exported and beef, dairy, malt, grapes and citrus are additional important export commodities (Table 1).

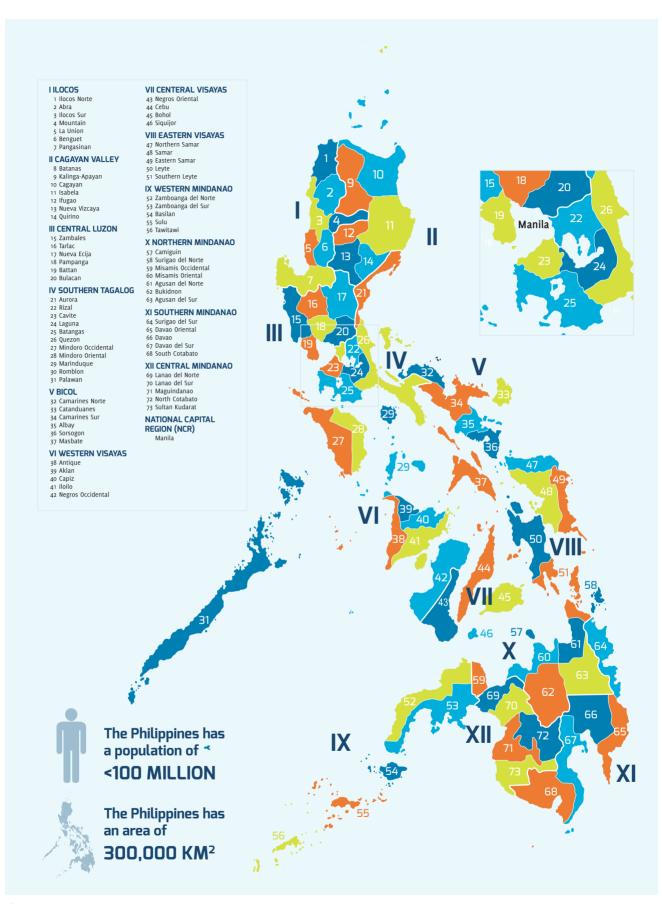


Figure 1

Map of the Philippines

Table 1
Australia's major agri-food exports to the Philippines in Australian dollars

	2016 (\$)	2017 (\$)	2018 (\$)
Wheat	295,350,298	484,569,549	436,499,899
Beef	119,423,413	153,526,254	170,928,855
Dairy	72,876,719	74,916,220	88,657,195
Malt	25,443,726	29,387,025	31,304,905
Grapes	13,521,359	10,242,531	14,497,158
Citrus	7,603,817	9,376,593	11,268,083
Total	719,501,810	927,654,563	941,844,204

Source: Global Trade Atlas

Australia and the Philippines are parties to the ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) which commenced on 1 January 2010. Under the AANZFTA, Australian wheat imports into the Philippines are duty free. Negotiations to upgrade this agreement will commence in 2019 and while there are unlikely to be any changes that affect grain exports to the Philippines they indicate ongoing commitment to the agreement.

Within the domestic grain industry, the Philippines produces significant quantities of rice (20mmt paddy) and corn (8mmt) but does not produce significant quantities of wheat or barley due to its unsuitable climate. As a result, Philippine imports of wheat have grown in recent years to nearly 6mmt. About half of imported wheat is for feeding animals (mainly pigs and poultry) and the other half is for flour milling. Currently, most milling wheat imports come from the US. Since 2010, Australia has sold significant quantities of wheat to the Philippines, mainly for animal feed.





4 Country profile



4.1 Economic growth

Historically the Philippines has grown more slowly, yet evenly, than many of its larger South East Asian neighbours. Its growth in GDP has been mostly fuelled by a shift from agricultural to urban employment, combined with increasing numbers of young people entering the workforce. However, a slowdown in urbanisation and low levels of labour productivity are affecting the Philippines' capacity to maintain current levels of growth. To maintain its historical rate of economic growth, historical productivity gains of 2.3% (UN 2019) need to increase by 60% (McKinsey, 2014). The USDA Economic Research Service predicts the Philippines economy to nearly double in size by 2030, relative to 2017 (Figure 2).

PWC (2017) indicate the Philippines will jump nine places in the global GDP rankings, from 28th in 2017 to 19th by 2050, the second largest move of any country (Figure 3). Emerging countries tend to benefit from strong population growth, however their progress depends on being able to generate enough jobs for their young people, thereby maintaining or improving per capita GDP. If they cannot do this, they risk political instability, with negative repercussions on growth, incomes and consumption of high value products.

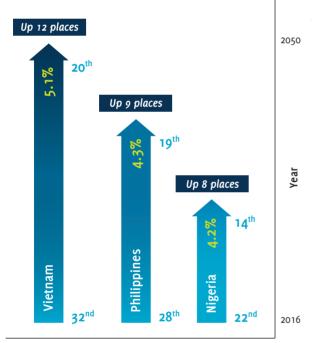
The Philippines is identified as one of the top five emerging markets with the best potential for growth in the size of its middle-class during 2015 to 2030 (Figure 4). Stable economic growth and an improved distribution of income will result in the number of middle-class households in the Philippines growing by 41.8% between 2015 and 2030 to reach 8.4 million by 2030 (Euromonitor, 2015). This forecast growth puts the Philippines among the top ten countries with the fastest rates of middleclass expansion during 2015 to 2030. Importantly, Filipino middle-class households are on course to have an improved capacity for discretionary spending, as the median disposable income in the country is forecast to reach US\$11,429 (in constant 2014 prices) per household in 2030, representing a significant 70% real gain from US\$6,710 in 2014 (Euromonitor, 2015). This increase in purchasing power is likely to see significant changes in the consumption of food, with an increasing proportion of income spent on meat, processed and convenience foods compared with staples such as rice.

The Philippines is identified as one of the top five emerging markets with the best potential for growth in the size of its middle-class during 2015 to 2030

2.6 2.4 Real GDP relative to 2017 2.2 2.0 1.8 1.6 1.4 1.2 2017 2023 2024 2025 2026 Year India (2634)
Vietnam (174) — China (10,123) — Indonesia (1090) Philippines (302) Malaysia (359)
 Thailand (419)
 Korea (1342)
 Japan (6128)

Figure 2
Estimated real GDP (relative to GDP in 2017) for 2017 to 2030, for countries that are Australia's top 10 wheat export destinations. Note: Real GDP in \$US billions in 2017 is indicated in brackets after each country name in the legend

Source: USDA (2018)



Average annual GDP growth rate, 2016–2050

Figure 3

The Philippines are predicted to have the second greatest move up the global GDP rankings by 2050

Source: PWC (2017)

4.2 Population growth

Based on census data — 2010 and 2015 — the Philippines' population is estimated at 107.7 million in 2019. Between these censuses, the population increased by over 8 million people, though the growth rate slowed slightly, from 1.89% (2010) to 1.72% (2015). Over time the population growth rate has slowed, from 3.6% in 1955. Forecasts indicate that the percentages of people in the working age bracket (15–64) and the younger working age bracket (15–40) are not expected to shift significantly (Figure 5).

In addition to the over 100 million Filipinos living in the Philippines itself, there are estimated to be around 10 million living abroad. While many have moved abroad temporarily to find work, others have settled abroad permanently. Reflecting its close ties with America, the United States is home to the largest group of overseas Filipinos — over 3.5 million. There are also large Filipino populations in the Middle East (1 million in Saudi Arabia, 822,000 in the United Arab Emirates and 204,000 in Qatar), Malaysia (793,000), Australia (397,000) and Japan (182,000) (World Population Review, 2019). As a result, net migration has been negative since the 1970's and has currently stabilised at a net exodus of 130,000 persons per annum. Overseas remittances back to the Philippines are estimated to be \$US25 billion annually (USDA GAIN, 2018).

Those most actively seeking migration from the Philippines are young, well-educated persons searching for non-rural employment opportunities.

120 Median income real growth over 100 the 2015-30 period (%) 80 60 40 20 16,000 18,000 8,000 10,000 12.000 14,000 20,000 22.000 Median income in 2030, US\$ per household ■ China ■ India ■ Indonesia ■ Nigeria ■ Philippines

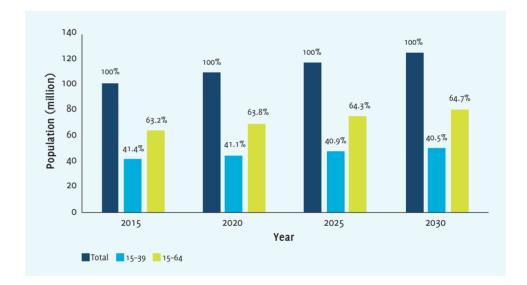
Figure 4
Top five emerging markets
with the middle-class growth
for the period 2015-30

Source: Based on Euromonitor (2015)

Figure 5
Population changes in the
Philippines in different age
brackets (total population,
working age (15-64) and
younger working age (15-39))
from 2015 to 2030

Percentages indicate the proportion of the population in each age bracket

Source: United Nations (2017)



4.3 Income and consumption

The Philippines currently has very strong consumption growth, assisted by the significant overseas remittances, and this is expected to continue. Annual consumption growth for the period 2018 to 2030 is forecast to be relatively high, at 6.9%. This level of consumption growth is higher than forecast for China, Indonesia, Malaysia, Vietnam, Thailand, South Korea and Japan (Table 2).

Kingwell *et al* (2018) showed that with rising income, a smaller share of spending goes towards necessities such as food, and that, even within food groups, a shrinking proportion is spent on food grains compared to fruit, milk and meat. As incomes rise in the Philippines, consumers will follow similar trends with a smaller proportion of total income being spent on rice and wheat-based products compared with these other food groups. This is being witnessed in the demand for wheat in the Philippines, with feed wheat imports recently overtaking food wheat imports and this trend is forecast to continue; although rice consumption continues to be strong.

Table 2
Forecast annual growth in total consumer expenditure for selected countries from 2018 to 2030

Country	Consumption growth from 2018 to 2030 (%)
Philippines	6.9
China	5.4
Indonesia	4.9
Malaysia	4.7
Vietnam	4.6
Thailand	3.0
South Korea	2.2
Australia	2.3
Japan	0.6

Source: Euromonitor



4.4 Urbanisation

In the past five decades the Filipino urban population grew by over 50 million people, and by 2050, it is forecast approximately 102 million people (more than 65 percent of the country's total population) will reside in cities. Urban density overall is high, particularly in Metro Manila, one of the region's fastest growing megacities (World Bank Group, 2017). In percentage terms, the current urbanisation level of 46.7% (United Nations, 2018) is not particularly high for the region (Figure 6). Possibly this is being impacted by young people leaving rural areas seeking work overseas rather than in Philippine cities.

Urbanisation is correlated with economic efficiency and economic growth. The economic benefits of urbanisation are realized through an increasing density of cities which provides opportunity for structural transformation of an economy.

While urbanisation in the Philippines has aided increased productivity, economic growth and poverty reduction, the country has not benefited from urbanisation gains as much as other countries in South East Asia which may leave scope for further improvements. Several structural issues affect the economic gains from urbanisation. First is the country's archipelagic geography which creates divisions in connectivity both internally and to external markets and creates high-cost internal supply chains. Second is the country's bypassing the industrialisation process normally associated with urbanisation, having shifted directly from an agricultural to a service sector

dominance. Third, and relatedly, is a stagnating manufacturing sector which has not resulted in high quality jobs and, in turn, has constrained urban growth. In all known cases of high and sustained economic growth, urban manufacturing and services lead the process, while increases in agricultural productivity free up the labour force which then moves to the cities to work in factories and the service sector. Fourth is the Philippines high exposure to natural disasters, particularly flooding and seismic risk, all of which exacerbate urban management challenges (World Bank Group, 2017).

Kingwell *et. al.* (2018) explain the relationship between urbanisation and diet in the context of Indonesia. They find the time-pressed lifestyle of the average urban based office worker, together with greater affluence, provide both the motivation and capability to demand convenience-foods that can be purchased cheaply and on-the-run. Other social trends, such as the participation of women in the workforce, particularly in the urban service sector, further reinforces these changes. As women's participation in higher paid employment in urban areas improves, the opportunity cost of their lost time increases, hence the demand for convenient, easily prepared foods increases at the expense of more traditional options (Pingali, 2007).

The Philippines has a low level of female participation in the workforce (45%), lower than Indonesia (52%) or Australia (59%). Countering this, most women are employed in service industries (74%), with agriculture accounting for 16% and other industry 10% (World Bank, 2018).



Figure 6
Urban population as a share of total population in 2017

Source: United Nations (2018)

5 Wheat



5.1 Wheat for food

It is impractical to produce wheat in the Philippines, so all wheat for food is imported. Historically, wheat imports by the Philippines are principally from the United States (US), particularly for food use. The US Wheat Associates reinforce this dominance in the market. They are highly active, providing trade and technical service calls and conducting wheat food production training. As a measure of the importance of the market, US Wheat Associates has its South Asian Region Office in Manila. Despite this, it has been stated publicly by millers that there is a willingness to purchase Australian wheat for bread making. To do so, however, would require a significant marketing effort to shift the current perception of Australian wheat away from being considered a feed wheat towards being a milling wheat (Pinca, 2014).

There are 21 companies engaged in flour milling in the Philippines, up from 8 mills in the 1980s. Another two mills are likely to be built in the near future, despite under-utilisation of the current capacity (Pinca, 2018). There are three clusters of millers:

- PAFMIL (1958-1980) 7 mills
- CHAMPFLOUR (1990-1995) 4 mills and
- New Mills (2010-2018) 10 mills

The capacity of these groups of mills is listed in Table 3. Typically to purchase wheat, the group (via an agent or broker) co-ordinate

Table 3

Philippine wheat industry milling capacity in 2017

Cluster	Capacity (mt per annum)	Share of total capacity (%)
Pafmil	2,553,000	50.4
Champflour	1,605,000	31.7
New Mills	909,000	17.9
Total Industry	5,067,000	

Source: Pinca (2018)

the orders to achieve a vessel (40-50,000 tonnes) of which there are a number of letters of credit by separate companies.

Estimates of the use of wheat for food in the Philippines are variable. Milling wheat imports estimated by OECD/FAO (2019) in 2017 were around 2.5mmt, indicating a capacity utilisation of just over 51%. In contrast USDA-FAS (2019) estimates food, seed and industrial (FSI) use in the Philippines in 2017 at close to 3.2mmt. Advice given to AEGIC from milling industry sources in the Philippines is that food use of wheat in the Philippines is closer to the USDA-FAS figure than that of OECD/FAO (although it should be noted that the USDA figure includes industrial use in addition to food use. Seed use is negligible).

Both OECD/FAO and USDA indicate that wheat use for food in the Philippines has increased steadily since 2000 to 2018 (Figure 7). In comparison consumption within the animal feed industry has jumped from 0.8mmt to 2.7mmt over the same period.

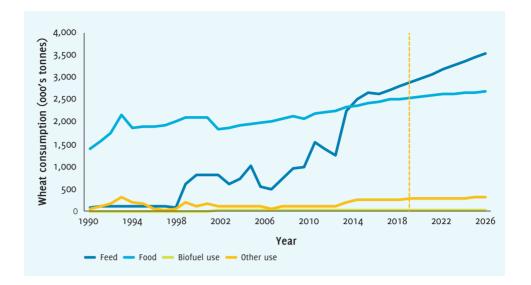


Figure 7
Major uses of wheat in the Philippines, 2000-18 and forecast to 2027

Source: OECD/FAO (2018)

From 1990 to 2018, the compound annual growth rate of per capita wheat consumption for food averaged about only 0.18% (OEDC/FAO, 2018). Consumption rose from 22.3kg per capita in 1990 to 23.5 kg per capita (30.8 kg per capita if the USDA-FAS FSI figure is used) in 2018 (Figure 8). This growth contrasts with rice consumption which has increased from 96.8kg per capita to 116.95g per capita over the same period. Hence the average Filipino in 2018 consumed almost five times more rice than wheat (OECD/FAO, 2018). The Philippines remains one of the highest per capita consumers of rice and lowest per capita consumers of wheat for food in Asia (Table 4).

The relatively low levels of wheat consumption for food currently in the Philippines – compared to the world average of 90kg per capita — suggests there may be substantial opportunity for enhanced consumption. This is supported by the continued expansion in the Philippine wheat milling capacity and reflected in the USDA-FAS (2019) estimates for robust growth in wheat FSI consumption out to 2028. In contrast, however, the OECD/FAO has a more subdued future outlook suggesting a fairly static pattern of per capita consumption of wheat for food in the future.

Table 4
Per capita wheat and rice consumption for food in selected
Asian countries in 2018. Source OECD/FAO, 2018

Country Wheat Rice Vietnam 16.38 154.82 Indonesia 26.58 135.87 Philippines 23.29 115.7		
Country	Wheat	Rice
Vietnam	16.38	154.82
Indonesia	26.58	135.87
Philippines	23.29	115.7
Thailand	18.66	99.32
Malaysia	31.62	82.93
China	62.64	77.21
India	59.99	69.97
South Korea	47.77	61.21
Japan	40.47	53.41

For example, if we assume a modest increase in per capita consumption of wheat for food to 25 kg per person, then under the medium UN population projections for 2030, total demand for wheat for food would grow to 3.12mmt. This is an increase of 620kt over the next 12 years. Using the USDA-FAS (2019) estimates, which are projecting more robust growth in FSI wheat use by the Philippines, (a CAGR of 3.8%) then, by 2030 an extra 1.3mmt will be demanded.

Commercial forecasts are in between these two estimates. Statista (2019) have forecast the growth in the volume of bread and bakery products sold in the Philippine at 2.1 per cent annually from 2015 to 2023. Improvements in quality and packaging is predicted to see revenues from bread and baked good increase at a faster rate than the quantity consumed. Total revenue is forecast to increase by 4.7 per annually to 2023. The demand for higher quality wheat products is already evident. While not yet widespread, higher quality breads and up-market bakery stores can be easily found in major city and regional towns and they are growing in popularity (Figure 9).



1.5 Per capita wheat consumption 1.4 relative to 1990 1.3 1.2 1.1 1.0 0.9 2018 1998 2026 1990 1994 2002 2006 2010 2014 2022 Year Wheat (22.3kg/hd) — Rice (96.85kg/hd)

Figure 8
Change in total food wheat or rice consumption in the Philippines relative to levels consumed in 1990

Note: Consumption (kg per capita) in 1990 is shown in brackets. Source OECD/FAO, 2018

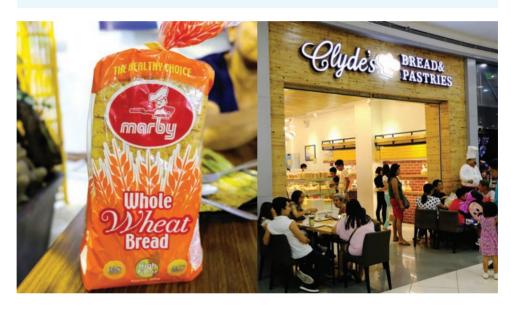


Figure 9
Up-market bakery stores selling a variety of bread and pastry products are not yet widespread in the Philippines but are growing in popularity

Currently, the Philippines' annual wheat milling capacity is about 5.1mmt (Pinca, 2018). This is nearly twice the current demand for wheat for food, and indeed, more than the demand estimated for 2030. This large milling capacity suggests the industry is anticipating future growth in the consumption of wheat for food which does not reconcile with current growth trends or future expectations. The two new mills being planned will only compound the under-utilisation of milling capacity, suggesting industry is more aligned with the USDA-FAS view of future wheat consumption for food.

As a result of intense competition in the Philippines milling industry and ongoing competition from imported flour, experts within the industry have reported privately that wheat flour prices are 21% lower in 2019 compared to 2014. New mills are aggressively pursuing the market to try and establish market share. Older mills are diversifying and moving to branded wheat-based products to offset losses in the commercial flour market.

This suggests that a reshaping of the flour milling industry in Philippines is underway, with new mills coming online and older mills having to invest more to survive through factory modifications, new packaging, carrying stock, sales and marketing, branding, supply chains and distribution costs.

Changing structures and cost pressures may see some of the traditional wheat buying arrangements break down into the future. Larger milling companies are better able to purchase grain directly rather than participate in the established buying groups. Further, the strong attachment of the Philippine milling industry to the relatively high cost US wheat may come under increasing strain.

These changes may open opportunities for greater participation of Australian wheat in the food sector. In recent years Australian wheat already has become a strong participant in the Philippine feed sector. This sees regular shipments of feed grain from Australia and provides possibilities for combinations with food-grade wheat if the further reshaping of the industry provides an opening. Currently, however, Australian wheat is not strongly considered as an option for food applications in the Philippines. The provision of education and technical services to

support the use for Australian wheat in food products suitable for the Philippine market is one mechanism the Australian industry could use to increase the likelihood of Australian wheat entering into the buying considerations of Philippine four mills and food manufactures.

5.1.1 Flour imports

The Philippines have little or no export of flour but have had significant imports. Flour imports increased dramatically from 2008 to 2015, and then declined to approximately 100kt in 2018 (Figure 10). At the peak in 2015, flour imports displaced around 10% of Philippine wheat imports by domestic millers, but flour imports have since dropped back to represent a 5% displacement in 2018.

Most of the rapid increase was due to imports from Turkey who sold flour at prices below the price of unprocessed soft milling wheat. After several years of legal research and hearings, the Philippine milling industry won government support for tariff protection from Turkish flour imports (US Wheat Associates) and on January 9, 2015, the Philippine authorities imposed an anti-dumping duty on imports of wheat flour from Turkey (Customs Memorandum Order No. 2-2015). The rate of the duty ranges from 2.96% to 16.19%, depending on the exporter (Global Trade Alert, 2019).

There is a likelihood that some Turkish flour continues to come in via the 'grey market' through Vietnam. These anti-dumping tariffs cease in 2019, potentially leaving the Philippine millers facing pressure from Turkish flour imports once again.

5.2 Wheat for feed

Philippine demand for feed wheat has exceeded wheat used for food after 2014 (Figure 7). The OEDC/FAO forecast most of the increasing demand for wheat in the Philippines up to 2027 will be for feed, with only modest increases in food use. Continued consolidation and modernisation of the domestic feed milling

industry is likely to more efficiently serve the feed needs of the growing livestock, poultry, and aquaculture industries. In the early 1980s the industry used to be led by on-farm feed mixers but is now increasingly dominated by large commercial players (USDA, 2019).

5.2.1 Pigs and chicken

The local pig industry is the dominant Philippine feed-consuming sector, accounting for an estimated 55% to 65% share of the country's feed requirements. Poultry production accounts for 25% to 35% and aquaculture covers roughly 10% (Figure 11).

The pig industry continues to undergo a period of consolidation. While large farms with greater economies of scale continue to grow and are coping with increased production costs, small backyard pig producers still account for the majority of the pig industry yet are struggling to remain viable. The overall pig population is likely to remain relatively flat during this consolidation phase as small producers leave the sector whilst the larger farms increasingly employ more sophisticated and scientific methods of pig production. This entails applying



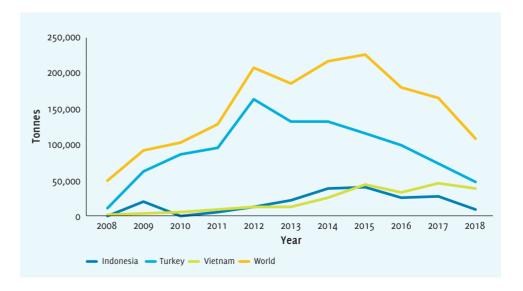


Figure 10 Wheat or meslin flour imports for the Philippines

Source: UN Comtrade (2019)

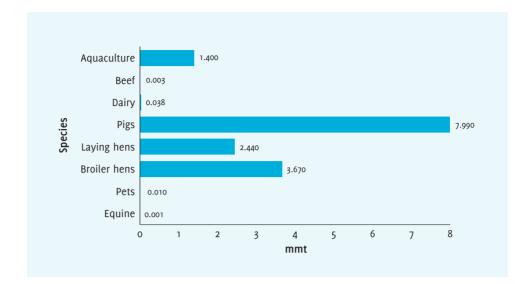


Figure 11
Estimated feed production by prominent species for the Philippines (mmt)

Source: Altech (2019)

modern animal health and nutrition technology and using high quality feed ingredients.

The poultry sector is also undergoing expansion and change, as new, large players, often with foreign capital backing, enter the industry. Their entry places financial pressure on small and medium producers, as margins tighten. Further increases in output for the pig and poultry industries have been forecast by the USDA (Figure 12).

This strong growth of the pork and poultry industries is resulting in increased use of wheat as a feed. However, wheat is one of several possible feed grains and use of feed wheat is price -dependent. Hence, use of wheat has been variable and does not correlate strongly with total feed demand from the aquaculture or animal production industries. As feed rations are often based on 'least cost ration' formulation, the amount of

wheat going into feed rations is based on its price and availability, relative to local and imported alternative energy sources such as corn, rice or cassava.

While corn is the preferred feed grain for local end users, quality issues, notably aflatoxin, are often associated with locally grown corn. As a result, most feed mills prefer imported corn for its reliability and uniformity (USDA GAIN Report, 2019). In addition, corn is grown in the wet season, and as there are frequent typhoons or tropical storms annually affecting the Philippines during this period, corn production and quality can be affected by the strength and movement of these events. Feed wheat is also imported as a corn substitute when favoured by price relativities and is highly substitutable. For example, feed wheat consumption in 2018–19 is expected to increase to 2.5mmt due firstly to animal feed demand from an expanding livestock sector and secondly, its attractive price relative to corn.

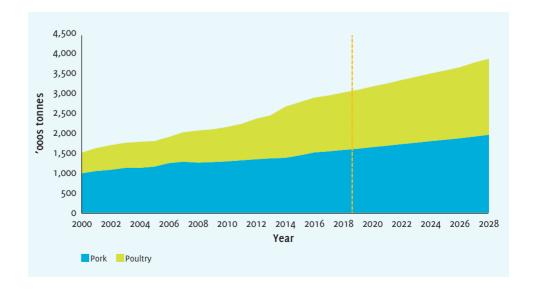


Figure 12
Philippines' pork and poultry production forecasts (mmt)

Source: USDA (2019)

5.2.2 Aquaculture

Aquaculture production (minus seaweed) in Philippines was reported at 826,000mt in 2018, though this volume appears to have stagnated or even declined in recent years (Figure 13). Including seaweed, aquaculture production was 2.3mmt in 2018 and represents just over half of the volume of all fisheries production for the Philippines. While there is still a large wild fish catch, there is plenty of underutilised resource for aquaculture expansion in the Philippines. For example, there is 338,393ha of swampland, 14,531ha of freshwater fishponds, 239,323ha of brackish water fishponds, 200,000ha of lakes, 31,000ha of rivers, and 19,000ha of reservoirs (SEAFDEC, 2019). To utilise these water resources requires substantial investments in infrastructure, however such infrastructure is exposed to risk of damage from typhoons (Figure 14).

Aquaculture production (excluding seaweed) by volume in the period 2015 to 2017 comprised, milkfish (49%), tilapia (33%), and shrimp/prawn (8%) (Figure 15). These three products

require feeding and all utilise wheat products, indicating a potential for increased use of wheat if production of these species expands (Table 5).

It is estimated that just over 1mmt of commercial aquaculture feeds were consumed in 2016 (Network of Aquaculture Centres in Asia-Pacific, 2017). Most, if not all local feed mills, have branched out to cater for the growing demand for aquaculture feeds. However, as is the case with flour milling, there appears to be over-capacity in the Philippines' aquaculture feed milling industry. The capacity of aquaculture feed mills in the Philippines ranges from 1 to 450t, with an average of 105t (Network of Aquaculture Centres in Asia-Pacific, 2017).

Lupins are an effective plant protein source for aquaculture diets and bring added functional properties to the feed pellets (Glencross, 2008; Rajan and Bavitha, 2015). Low alkaloid Australian sweet lupin represent an alternative protein source for a range of aquaculture feeds and also are suitable for

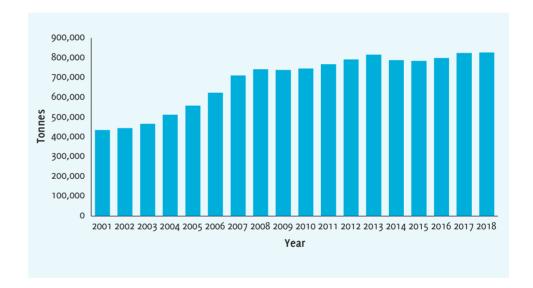
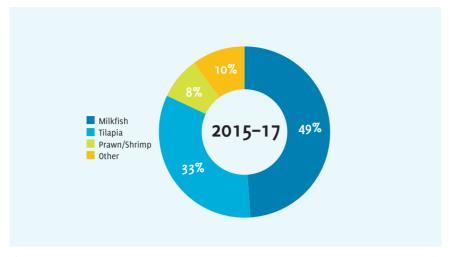


Figure 13 Aquaculture production (minus seaweed) of the Philippines in 2001-18

Source: Philippines Statistics Authority



Figure 14 Simple fish pens for aquaculture are a common site in the many picturesque lakes throughout the **Philippines**



Aquaculture production excluding seaweed in the Philippines was reported at 826,000mt in 2018.

Figure 15
Proportion of major species from aquaculture production in the Philippines — average of 2015 to 2017 (excluding seaweed)

Source: Philippines Statistics Authority

Table 5
Ingredients derived from grain and their inclusion rates in manufactured aquafeeds in Asia

Nutrient	Nile tilapia	Grass carp	Common carp	Shrimp	Freshwater prawn	Milkfish
Corn	6-22	9-13	7–10			
Wheat flour		17-19	12		14-19	
Bread flour						5
Soybean meal	17-46					30
Soybean cake		5-14	27-32	15	21-32	
Rapeseed cake		41-51	40		15-26	
Rice bran						49
Corn gluten meal	12					
Wheat bran		10-11	4		7-10	
Wheat meal	4.2			28-30		
Wheat middling	4-30					
Groundnut cake				11-16		

Source: Hasan et. al. (2007)



inclusion in feed rations for pigs and chickens. Lupins are an alternative to soymeal. However, often price relativities favour use of soymeal and imports of soymeal are forecast to reach almost 3mmt in 2018/19, with the US supplying nearly all of this. Philippines is the largest export market for US soymeal (USDA GAIN, 2018).

Australia currently exports only around 5,000t of lupins to the Philippines, indicating lupins are yet to be price competitive against soybean meal. In addition, feed millers are not as familiar with lupins in their rations as with other grains, which increases their hesitancy to use lupins.

5.3 Wheat imports

As stated previously, all wheat used in the Philippines is imported. For food wheat, there is a strong preference for US wheat (see Figure 16). This appears to be partially due to the very strong historical ties between the US and the Philippines. The US is viewed as a suitable and consistent supplier of low, medium and high protein wheats for usage in the range of Philippines baking and food applications. The Philippines is the 5th largest wheat importer globally and ranked as the 3rd largest destination for US wheat volume and it continues to have a strong presence, brand and wheat grade reputation for a range of protein classifications including: Western White, Soft White Winter, Hard Red Winter and Dark Northern Spring. In addition, the ability to combine a range of grades from the US assists with freight and transport efficiencies.

Much of the wheat-using technology in the Philippines is based around US wheat. A study visit to the Philippines by AEGIC staff in 2019 confirmed that:



Figure 16
Bread loaves branded in the Philippines as Premium Quality 'American Bread' and packaged in the Stars and Stripes

- The Philippines relies very heavily on the US for its food wheat supply.
- The US dominates the baking segments bread, pan de sal, buns, cookies and cakes.
- The ability to combine a range of grades from the US assists with freight and transport efficiencies.
- Bulk shipping freight rates from the US (PNW) and Australia (WA) are often at a similar level (unlike the situation in Indonesia where Australia enjoys a freight saving advantage of \$US10-15/t).

The intense competition in the Filipino milling industry and resulting restructuring discussed earlier may present opportunities for Australian wheat, as mills look at their supply chains for ways of reducing costs, at least for products that do not require high protein wheat, such as noodles, or for blending with higher protein wheats.

For feed wheat, however, Australia has dominated the Philippines market in recent years. Volumes have increased over the past five years. Favourable tariff rates under the ASEAN-ANZ-Free Trade Agreement (established in January 2010), compared to other origins, have supported the use of Australian wheat for food (e.g. an effective 5% advantage over US wheat). In feed rations wheat competes on price mostly against domestic corn, depending on price, availability and whether there are aflatoxin concerns with domestic corn. This creates both opportunities and challenges for Australia.

5.4 Consumption trends in wheatbased foods

Wheat is an important food in the Philippines being consumed mainly as bakery products, noodles, cookies and crackers (Figure 17). For bakery products, this is dominated by pan de sal (Filipino bread rolls, see Figure 18) and loaf bread.

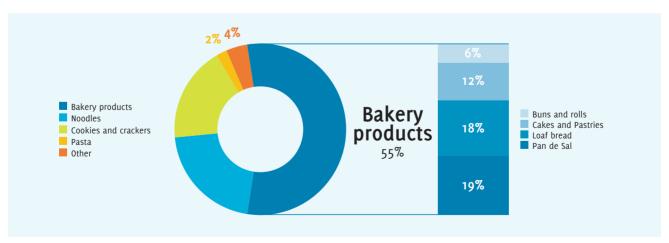


Figure 17
Main uses of wheat for food in the Philippines

Source: Pinca, 2018



Figure 18
Pan de Sal is a bread roll commonly sold in the Philippines eaten as a snack or to accompany other meals

Instant noodle manufacture in the Philippines is nearly 4 billion packets per annum which equates to around 30% the size of Indonesia instant noodle market (Table 6). While the Philippines instant noodle consumption ranks seventh in the world, on a per capita basis, it is fifth (of the major consumers) with 36 servings per head annually (Figure 19 and Figure 20). In recent

Figure 20 Instant noodles are a common meal in the Philippines often paired with eggs or fried fish

years per capita consumption of instant noodles has been fairly static, which suggests that future growth is likely to be more closely linked to population growth.

In the Philippines, a style of fried noodle called "pancit canton" is popular, for which the flavours of calamondin (citrus fruit) and hot chili are popular. Seafood flavour is popular for

Table 6
Top consumers of instant noodles — millions of serves per annum

	Country/Region	2014	2015	2016	2017	2018
1	China/Hong Kong	44,400	40,430	38,520	38,970	40,250
2	Indonesia	13,430	13,200	13,010	12,620	12,540
3	India	5,340	3,260	4,270	5,420	6,060
4	Japan	5,500	5,540	5,660	5,660	5,780
5	Vietnam	5,000	4,800	4,920	5,060	5,200
6	USA	4,280	4,080	4,100	4,130	4,400
7	Philippines	3,320	3,480	3,410	3,750	3,980
8	South Korea	3,590	3,650	3,830	3,390	3,820

Source: World Instant Noodles Association

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Figure 19
Per capita consumption of instant noodles by major consumers (Note: China includes Hong Kong)

Source: World Instant Noodles Association

noodle soup. As the Filipino dietary patterns include a relatively high number of snacks, instant noodles in small cups are also popular.

It should be noted that some instant noodles have a component of rice flour. The World Instant Noodles Association defines instant noodles as "a product prepared from wheat flour and/or rice flour and/or other flours and/or starches as the main ingredient, with or without the addition of other ingredients".

The erosion of Australia's market share will be offset by growth in the volume of wheat required to be imported by the Philippines as its population and wealth increases towards 2030. It is expected that Australian wheat will be imported for feed purposes and smaller volumes for food milling purposes. The main volumes exported are likely to be the ASW grade for use as both feed and general-purpose flour, and smaller volumes of AH and APH for milling uses (Figure 22).

5.5 Future for Australian wheat exports to the Philippines

It is difficult to see Australian exports of wheat to the Philippines increasing significantly in coming years. While wheat imports by the Philippines are forecast to grow from 5.5mmt in 2017 to 6.76mmt in 2030, increased competition from the Black Sea and South America is likely to reduce Australia's current dominance in the feed wheat sector (Figure 21).

The volume of wheat imported by the Philippines will increase as its population and wealth grows towards 2030.



Figure 21
Origins for Philippine imports of wheat in 2017 and projections for 2030
Source: AEGIC

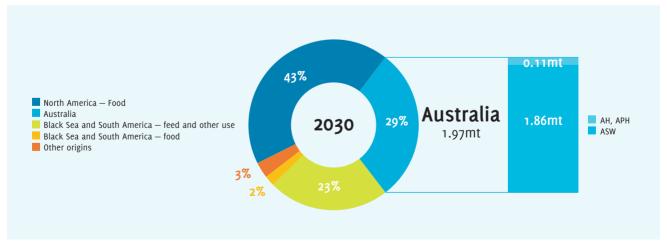
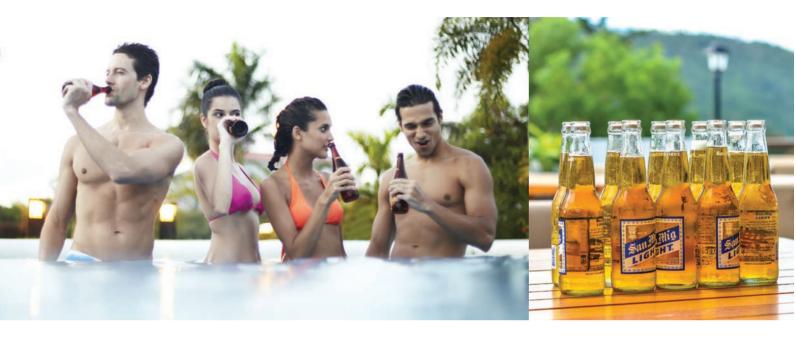


Figure 22
Projections of Philippine imports of wheat for 2030 with Australian wheat type
Source: AEGIC

6 Barley



6.1 Beer consumption

Production of beer in the Philippines has grown steadily since 2007 increasing from 1,360,000kl to 1,780,000kl in 2017, a 30.9% increase (Table 7). This compares with production in many other countries with either stagnating or declining production and puts the Philippines in a the group of robust growth markets worldwide. The Philippines, however still falls well behind it's South East Asian neighbour, Vietnam, which has more than doubled it's beer production over the same period.

In 2007 Philippines' total beer consumption was estimated at 1,342,000kl, or 15l per person annually, and increased to 1,980,000kl in 2017, or 19l per person annually. These per capita amounts are very low by world standards, where, for example Japan (which sits 50th on the world rankings) consumed 40l per person annually in 2017 (Kirin, 2018).

Beer in the Philippines is mainly produced by the two large breweries with one being very dominant. San Miguel Corporation has market share of around 90% and it produces San Miguel Pale Pilsen. The other company, Asia Brewery only has a market share of around 7%. These two large producers are now being joined by a small but growing number of microbreweries opening up across the nation (Euromonitor, 2018).

Beer production increased 7.9% in 2017 compared to 2016 (Figure 23). Increased imports have meant consumption has increased by 13.8% in the same period due to sustained economic expansion, including an improvement in employment. There is also a trend in

alcohol consumption away from the mainstream brandy—which is cheap—toward beer, considered a high-class product (Kirin, 2018).

6.2 Barley and Malt imports

6.2.1 Barley

The Philippines has little or no malting capacity within the country and therefore relies on malt imports to supply its brewing industry. There is also little import of barley for feed into the Philippines, with total imports ranging from 3,000 to 6,000 tonnes over the last 10 years, with Australia being the main supplier (Figure 24).

Given the continued expansion of the feed industry in the Philippines, new demand for Australian barley may be created if feed manufacturers can become more familiar with its use. Barley is used effectively in feed rations in North America, Europe, Australia and China. Chinese feed manufacturers understand the relative value and potential of barley versus corn in the feed rations for pigs and poultry and therefore import Australian, as well as French and Ukrainian, barley to replace some of the corn ration in their feed formulations. However, while familiarity may create new demand, further use of barley in animal feed rations in the Philippines (and other South East Asian countries) must be competitive with locally grown corn as well as imported feed wheat if it is to gain market share.

Table 7
Beer production for the top 25 beer producing countries in 2007 and 2017

2017						
Rank	Country	Production Volume (kl)	Growth in volume compared to 2007 (kl)	Growth from 2007 (%)		
1	China	39,788,100	881,500	2.30%	38,906,600	1
2	United States	21,775,300	- 1,512,500	-6.50%	23,287,800	2
3	Brazil	14,000,000	3,620,000	34.90%	10,380,000	6
4	Mexico	11,000,000	441,400	4.20%	10,558,600	4
5	Germany	9,301,300	- 1,095,700	-10.50%	10,397,000	5
6	Russia	7,440,000	- 4,028,800	-35.10%	11,468,800	3
7	Japan	5,247,800	- 1,060,900	-16.80%	6,308,700	7
8	United Kingdom	4,405,100	- 726,500	-14.20%	5,131,600	8
9	Vietnam	4,375,000	2,961,000	209.40%	1,414,000	25
10	Poland	4,050,000	500,000	14.10%	3,550,000	9
11	Spain	3,720,000	285,000	8.30%	3,435,000	10
12	South America	3,232,000	579,000	21.80%	2,653,000	13
13	Nigeria	2,600,000	1,250,000	92.60%	1,350,000	28
14	Netherlands	2,480,000	- 245,900	-9.00%	2,725,900	12
15	India	2,250,000	1,350,000	150.00%	900,000	33
16	Thailand	2,233,800	63,800	2.90%	2,170,000	16
17	Canada	2,207,700	- 184,300	-7.70%	2,392,000	15
18	Colombia	2,189,300	289,300	15.20%	1,900,000	18
19	France	2,130,000	620,400	41.10%	1,509,600	23
20	Belgium	2,120,000	263,500	14.20%	1,856,500	20
21	South Korea	2,000,000	211,400	11.80%	1,788,600	21
22	Czech	1,909,800	47,100	2.50%	1,862,700	19
23	Argentina	1,885,600	435,600	30.00%	1,450,000	24
24	Philippines	1,780,000	420,000	30.90%	1,360,000	26
25	Ukraine	1,780,000	- 1,376,100	-43.60%	3,156,100	11
Global t	otal	190,897,400	9,844,000	5.40%	181,053,400	

Source: Kirin (2018)

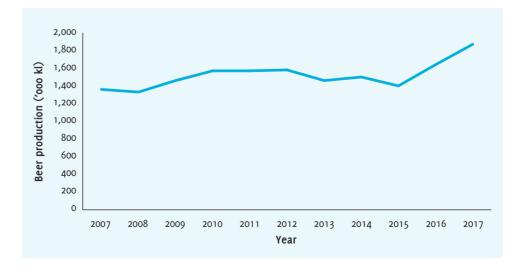


Figure 23
Philippine beer production

Source: Barth-Haas Group (2019)

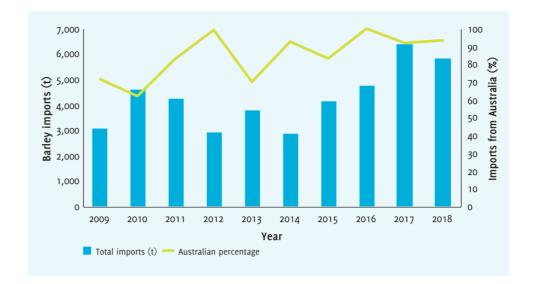


Figure 24
Total import of barley by the
Philippines from 2002 to 2018
(left axis) and the proportion
of total imports originating
from Australia (right axis)

Source: UN Comtrade Database

6.2.2 Malt

The Philippine brewing industry is reliant on malt imports, importing roughly 80,000t on average from 2009–19. The quantities of imported malt are variable through this period, with a high of nearly 150,000 tonnes in 2018, but a low of just under 60,000 tonnes in 2014 (Figure 25). Rice and sometimes corn is used as an adjunct to malted barley in the brewing process partly to reduce costs but also enhance flavours.

Australia has been the supplier of malt, with 44% of the market share over the 10 years to 2018. China is the next highest at 28% while France provided 17%. A recent trend indicates an increasing reliance on China as the origin for malt imports, providing just over half of the imported malt for 2018.

Noticeable in Figure 25 is the dip in import volumes over the period 2012 to 2015, with imports from Australia being most affected. Comparing estimated beer production and malt imports for the period 2013–15 (Figure 26) there appears to be a discrepancy, where malt imports reduced, though beer production was held constant. High malt prices during this period may have encouraged higher use of adjuncts in some years.



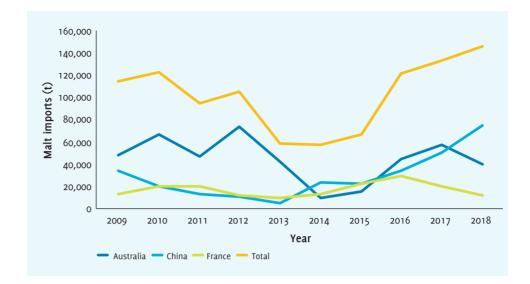


Figure 25
Malt imports by the
Philippines from selected
main origins from 2009
to 2017

Source: UN Comtrade Database



Figure 26
Relationship between the volume of beer production (left axis) and malt imported by the Philippines (right axis) from 2009 to 2018

Source: UN Comtrade Database and Kirin (2018)



The Philippines brewing industry is reliant on malt imports with 80,000mt on average imported annually from 2009 to 2019.



7 Conclusions



On face value, the Philippines appears to be a strong candidate for increased exports of wheat and barley from Australia. Strong population growth, with a median age of around 23 and remittances from overseas estimated at \$US25 billion annually have resulted in very strong consumption growth. This has been expressed through diversification of the Filipino diet with strong growth in the food retail industry and increased consumption of livestock and poultry products.

Despite this, there are other markets in South East Asia that currently hold more compelling prospects for Australian grain, particularly in the food sector. For milling wheat, the relative inexperience with the use of Australian wheat for food products in the Philippines, combined with the historical links and long-term supply relationship it has with the US, makes the market a difficult one to crack. However, there are signs that competitive pressures are increasing within the milling sector that may start to reshape the industry, particularly in relation to traditional buying arrangements. To capitalise on these changes and gain a foothold in the food market, the Australian industry should consider providing education and technical services that increases the familiarity of Philippine flour millers and food manufacturers with Australian wheat.

Given Australia's current strong position in the feed market which provides opportunities to ship milling wheat at lower costs through combination cargos, now may be an opportune time to raise awareness of Australian wheat in a large and dynamic market which Australia has largely been excluded from. The benefits of this investment, would need to be weighed against investment that strengthens Australia's position in markets already familiar with Australian wheat such as Indonesia and Vietnam.

Philippine feed millers are also unfamiliar with the use of barley in feed rations despite its high suitability and the advantages it brings. Providing technical assistance to Philippine feed users that builds awareness of Australian feed barley or, indeed other Australian feed grains, may stimulate demand and allow Australian growers greater participation in this rapidly expanding sector.

Australia benefits from favourable tariff arrangements through the ASEAN-ANZ- Free Trade Agreement compared to most competitors for the supply of wheat (and potentially barley) as feed to the Philippines. This price advantage this provides, however, is vulnerable to price competition from greater export volumes of feed wheat from the Black Sea and Argentina.

Strong population growth, and remittances from overseas estimated at \$US25 billion annually have resulted in very strong consumption growth.

8 References

- 1. Alltech (2019). 8th Global Feed Survey 2019. www.alltech. com/feed-survey-interactive-map
- 2. Austrade (2019) Philippines Country Brief. https://dfat.gov. au/geo/philippines/Pages/philippines-country-brief.aspx
- Barth-Haas Group (2019). The Barth Report. www. barthhaasgroup.com/en/media-library/downloads?medium_ downloads=BART+BERICHT+-+MARKET+LEADERS+REPORT&cck= media_center__downloads&search=media_center__ downloads&task=search
- Euromonitor (2015). Top Five Emerging Markets with the Best Middle-class Potential: 2015–30. https://blog. euromonitor.com/top-5-emerging-markets-with-the-best-middle-class-potential/
- Euromonitor 2018. Beer in the Philippines. Euromonitor International.
- Glencross, B. (2008). Harvesting the benefits of lupin meals in aquafeeds. In J.A. Palta and J.B. Berger (eds) 2008 'Lupins for Health and Wealth' proceedings of the 12th International Lupin Conference, 14–18 Sept. 2008, Fremantle Western Australia.
- 7. Global Trade Atlas. www.gtis.com/gta
- Global Trade Alert (2019). Philippines: Definitive antidumping duty on imports of wheat flour from Turkey.
 www.globaltradealert.org/intervention/18324/anti-dumping/ philippines-definitive-antidumping-duty-on-imports-ofwheat-flour-from-turkey
- Hasan, M. R., Hecht, T., De Silva, S., and Tacon, A. (2007). Study and analysis of feeds and fertilizers for sustainable aquaculture development. FAO Fisheries Technical Paper No. 497 https://articles.extension.org/sites/default/files/w/5/54/ Studyandanalysis.pdf
- 10. Kingwell, R., Elliott, P., Cowman, S. Carter, C. and White, P. (2018). The Indonesian wheat market: its importance to Australia. Australian Export Grain Innovation Centre. www.aegic.org.au/wp-content/uploads/2018/08/AEGIC-The-Indonesian-wheat-market-its-strategic-importance-to-Australia_.pdf
- Kirin (2018). Kirin Beer University Report Global Beer Consumption by Country in 2017. Kirin Holdings Company Limited. www.kirinholdings.co.jp/english/ news/2017/1221_01.html

- McKinsey and Company (2014) Paths to shared prosperity for the Philippine economy. www.mckinsey.com/featuredinsights/asia-pacific/paths-to-shared-prosperity-for-thephilippine-economy
- 13. Network of Aquaculture Centres in Asia-Pacific (2017). Status of aquaculture feed and feed ingredient production and utilisation in Philippines. https://enaca.org/?id=907
- 14. OECD/FAO (2018), OECD-FAO Agricultural Outlook (Edition 2018), Organisation for Economic Co-operation and Development Agriculture Statistics (database), https://doi.org/10.1787/d4bae583-en (accessed on 30 October 2018)
- OECD/FAO (2019), OECD-FAO Agricultural Outlook (Edition 2019), Organisation for Economic Co-operation and Development Agriculture Statistics (database), https://doi.org/10.1787/19991142
- **16.** Pingali, P. (2007). Westernization of Asian diets and the transformation of food systems: Implications for research and policy. Food Policy, 32(3), 281–298.
- 17. Pinca, R (2014). ABC Interview. www.abc.net.au/news/rural/2014-09-24/big-opportunities-in-philippines-for-australian-milling-wheat/5765298
- 18. Pinca, R (2018). The Philippine flour milling industry: developments, challenges and opportunities. www.iaom. info/wp-content/uploads/o1pafmsea18.pdf
- Philippines Statistical Authority (various issues). Fisheries Statistics of the Philippines. https://psa.gov.ph/content/ fisheries-statistics-philippines
- 20. PWC (2017). The long view: how will the global economic order change by 2050? www.pwc.com/gx/en/world-2050/ assets/pwc-the-world-in-2050-full-report-feb-2017.pdf
- Rajan, R. and Bavitha, M. (2015). Lupins An alternative protein source for aquaculture diets. International Journal of Applied Research 1: 4–8. www.allresearchjournal.com/archives/2015/vol1issue3/PartA/61.1.pdf
- 22. Ritchie, H. and Roser, M. (2017). Meat and Seafood Production & Consumption. Published online at OurWorldinData.org. https://ourworldindata.org/meat-and-seafood-production-consumption
- 23. SEAFDEC (2019). Fisheries Country Profile: Philippines. www.seafdec.org/fisheries-country-profile-philippines

- 24. United Nations (2017). World Population Prospects: The 2017 Revision. United Nations Population Division, Department of Economic and Social Affairs. https://population.un.org/wpp/Download/Standard/Population/
- 25. United Nations (2018). World Urbanization Prospects. United Nations DESA/Population Division https://population. un.org/wup/
- United Nations (2019). Comtrade Database. https:// comtrade.un.org/data/
- 27. USDA (2018) Economic Research Service. International Macroeconomic Data Set. United States Department of Agriculture. www.ers.usda.gov/data-products/internationalmacroeconomic-data-set.aspx
- USDA-FAS (2019). International Baseline Data 2019
 International Long-Term Projections to 2028. www.ers.usda. gov/data-products/international-baseline-data/international-baseline-data/#2019
- 29. USDA GAIN Report (2018). Philippine Oilseeds and Products Situation and Outlook. https://gain.fas.usda.gov/Recent%20 GAIN%20Publications/Oilseeds%20and%20Products%20 Annual_Manila_Philippines_3-16-2018.pdf
- 30. USDA GAIN Report (2019). Philippine grain and feed Situation and Outlook. https://gain.fas.usda.gov/Recent%20GAIN%20 Publications/Grain%20and%20Feed%20Annual_Manila_ Philippines_3-8-2019.pdf

- USDA (2019). Southeast Asia's Growing Meat Demand and Its Implications for Feedstuffs Imports. www.ers.usda.gov/ amber-waves/2019/april/southeast-asia-s-growing-meatdemand-and-its-implications-for-feedstuffs-imports/
- 32. US Wheat Associates (2018). U.S. Wheat Industry
 Commitment to Philippines Milling Industry Returns Export
 Sales Increase. www.uswheat.org/u-s-wheat-industrycommitment-to-philippines-milling-industry-returns-exportsales-increase
- World Bank (2018) World Bank Open Data https://data. worldbank.org/
- 34. World Bank Group (2017). Philippines urbanization review fostering competitive, sustainable and inclusive cities. http://documents.worldbank.org/curated/en/963061495807736752/pdf/114088-REVISED-PUBLIC-Philippines-Urbanization-Review-Full-Report.pdf
- 35. World Instant Noodle Association (2018). Global Demand. https://instantnoodles.org/en/noodles/market.html
- World Population Review (2019) Philippines population 2019. http://worldpopulationreview.com/countries/philippines-population/



Perth

3 Baron-Hay Court South Perth Western Australia 6151

P: +61 (08) 6168 9900 E: admin@aegic.org.au

Sydney

1 Rivett Road Riverside Corporate Park North Ryde New South Wales 2113

P: +61 (02) 8025 3200 A: PO Box 711 North Ryde NSW 1670, Australia

aegic.org.au

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