



# Wheat and barley markets in Vietnam

## ▮ THEIR STRATEGIC IMPORTANCE TO AUSTRALIA



## Purpose

AEGIC exists to increase value in the Australian grains industry.



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# Recommendations



1

Australia needs to monitor and respond to the changing needs of Vietnam to ensure it remains a preferred wheat supplier for noodles and bread.

Vietnam's middle class is expected to make up one-quarter of the population by 2030 and will demand higher quality food and beverages. New consumption preferences will become manifest within this group and will help set the future trends that eventually move to the broader population as the economy grows.

While Australian wheat is well regarded in Vietnam, functionality variations in recent years have negatively impacted perceptions of Australian wheat quality. The Australian wheat industry needs to remain aware of the impact of these trends.



2

Convenience and affordability will remain important consumer factors for the foreseeable future. Australian wheat needs to be attractively priced despite its preferred status in the market.

Wheat consumption per capita as food in Vietnam has increased from 5kg in 1990 to over 16kg in 2018, and will continue to grow to about 23kg by 2030.

Australia is well positioned to benefit from this growth, mainly in the noodle and bread sectors where quality is important.

However, despite the expected economic growth, incomes are relatively low in Vietnam and cost will remain a major factor for most Vietnamese people.



3

The feed market in Vietnam has expanded rapidly over the past 10 years but feed barley is not yet used. Providing technical information and assistance about the advantages of Australian feed grains may stimulate demand in Vietnam.

The feed sector continues to expand rapidly in Vietnam, providing opportunities for a range of Australian feed grains.

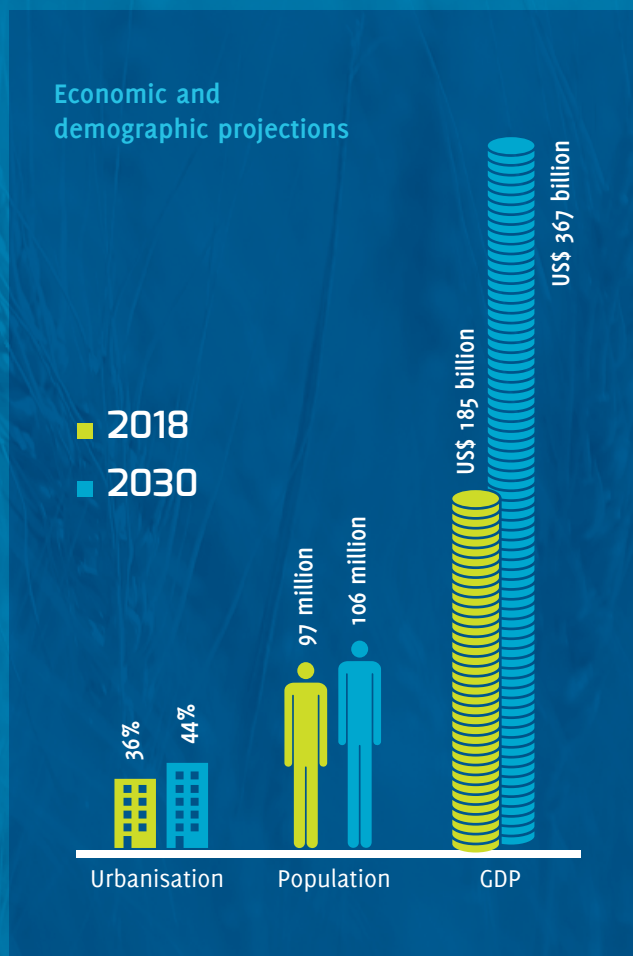
Building awareness of the benefits of feed barley and other feed grains, and supporting their use in the Vietnam feed industries, should allow Australian farmers to participate in this expanding market.



# Summary

## Economy, demographics and population

- Vietnam is set to outpace the rest of South East Asia and much of the rest of the world in its rate of economic growth and development over the coming decades.
- Vietnam's economy will more than double in size by 2030 and by 2050 Vietnam's global GDP ranking is expected to have jumped 12 places up from 32nd into the top 20 – the largest move of any country.
- Vietnam has the third largest population among the countries of South East Asia and continues to grow; however, its growth is slowing and its population is ageing. The proportion of the population aged between 15 and 40, which in 2017 made up the largest share of the country's gross income, will decrease in absolute terms by about 3.5 million people. By contrast, Indonesia and the Philippines will continue to experience an increase in the total number of people in this age bracket in their respective countries.
- By 2030, more than two-thirds of the population is expected to continue to have limited discretionary spending power where about 50 per cent of their consumption expenditure will involve purchases of essential items such as food and non-alcoholic beverages. A smaller proportion of the population (about 25 per cent) will be sufficiently affluent to demand a greater range of foods with improved quality.
- Vietnam's level of urbanisation lags behind much of the rest of Asia and so affects the patterns of food consumption. Despite steady growth in the urban population, only 35 per cent of Vietnam's population lived in urban areas in 2017. The urban population is not expected to exceed the rural population until well after 2030, whereas in Indonesia this situation was reached by 2010.

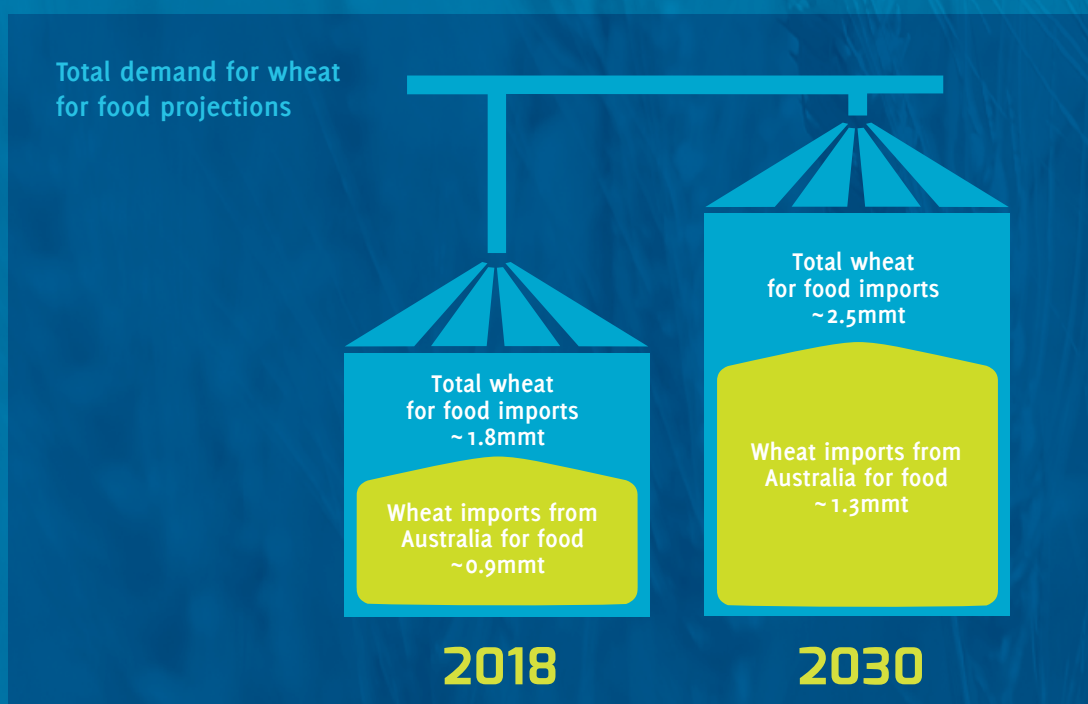


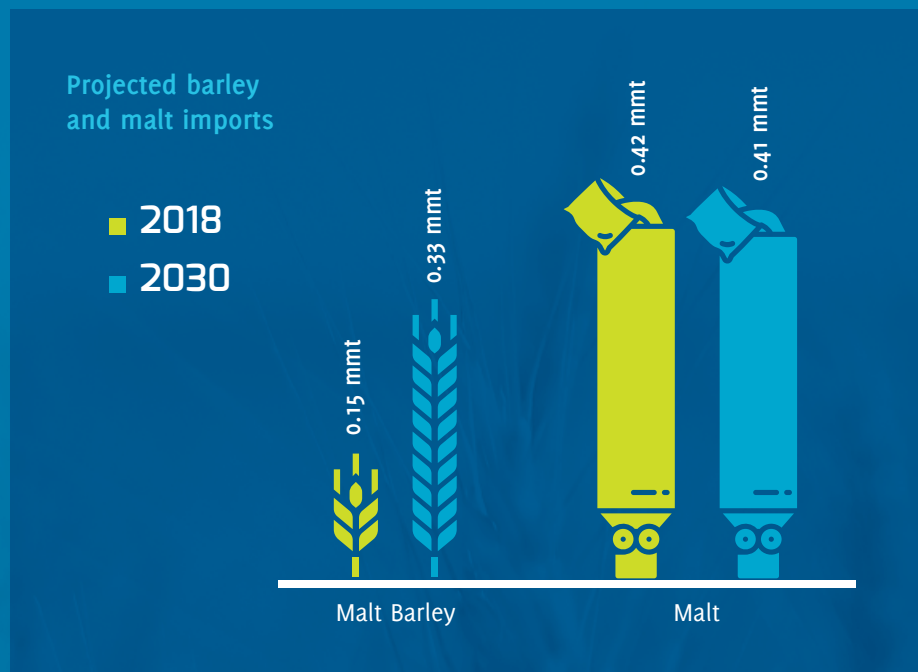
*Wheat use in Vietnam has increased rapidly from below 1mmt in 2000 to 4.5mmt in 2018.*



## Wheat in Vietnam

- Wheat use in Vietnam has increased rapidly from below 1mmt in 2000 to 4.5mmt in 2018. Consumption of wheat as food for people has increased steadily, while consumption within the animal feed industry has jumped from nearly zero up to 3mmt in the space of 10 years.
- From 1990 to 2018, the compound annual growth rate in per capita wheat consumption for food averaged about 5.6 per cent each year, rising from about 5kg per capita in 1990 to more than 16kg per capita in 2018. However, wheat use for food consumption is still at low levels in Vietnam compared to other Asian countries. There remains substantial opportunity for further growth in consumption. Wheat consumption for food is expected to grow at about 3 per cent per annum to 2030.
- Demand for feed wheat is similarly likely to continue to grow as aquaculture and animal industries continue to grow. However, demand for feed wheat is more variable as it depends on the relative prices of alternative local and imported competing feed sources, such as corn and cassava. There is nevertheless an underlying demand for wheat in aquafeeds given wheat's functional role in stabilising feed pellets and its ease of use in industrialised feed processing.
- Australia has been the largest and most consistent supplier of wheat to Vietnam by far over the past 20 years. From 2000 to 2008, imports of Australian wheat averaged about 0.43mmt but with a growth rate of only 1.4 per cent per annum. A step change in imports occurred in a handful of years after 2008 when imports of wheat for feed grew rapidly by more than 1mmt per annum. As a result, from 2009 to 2017, imports of Australian wheat averaged about 1.5mmt and again grew at about 1.4 per cent per annum.
- Since 2016, significant expansion in the use of feed wheat in Vietnam has mainly been supplied by wheat from the Black Sea region. This import of feed wheat has seen the Australian share of total wheat imports decline, although Australia's share of the wheat for food market has remained steady.
- Total demand for wheat for food is projected to grow to 2.8mmt by 2030, which is an increase of about 1.2mmt over the next 12 years.
- In an average year, Australia may reasonably expect to supply about 0.9mmt of wheat to Vietnam's higher priced food market. Australian wheat exports to this market may rise to about 1.4mmt by 2030. Higher volumes of Australian wheat will be imported in years when Australia can supply higher protein wheat (e.g. APH), which is preferred by the Vietnamese over its North America counterparts.
- Additional quantities of Australian wheat also may be supplied when it is competitively priced against wheat from the Black Sea or South America that is currently used in blending or other lower value uses such as feed. The superior hygiene and integrity of Australian wheat provide some advantage over competing origins for these purposes.
- It is also possible that the quantity of Australian wheat supplied to Vietnam may decline if it fails to meet the growing quality requirements of consumers. Indeed, in recent years Vietnamese importers have expressed a strong preference for wheat sourced from some regions in Australia over others because of perceptions about declining wheat quality in some regions.





## Barley in Vietnam

- Beer production in Vietnam has grown at 9 per cent per annum over the past 10 years, lifting Vietnam up 16 places in the global rankings of beer production. Vietnam has overtaken Thailand and South Korea to become the 9th top producer of beer with more than 4.3 billion litres produced annually.
- Most Vietnamese prefer beer over other alcoholic beverages. Continued growth in beer consumption at 3 to 5 per cent per annum up to 2030 will see Vietnamese per capita beer consumption reach about 70L, substantially passing the per capita consumption levels in many other major Asian nations.
- As incomes increase, the demand for higher quality beers is rising, which may lead to increasing production of full malt beers. By 2020, about 10 per cent of the market will be high-end beers, 62 per cent will be mid-range products and 28 per cent will be lower quality, cheaper beers.
- A continuing rise in the special consumption tax has put pressure on brewers' margins and may dampen demand for beer if tax rates continue to rise. The special consumption tax on beer increased from 45 to 55 per cent in 2016 and has increased a further 5 per cent each year since. If this trend continues, the tax will reach 70 per cent in 2019.

- From 2002 to 2016, barley imports to Vietnam have fluctuated between 40,000 and 50,000mt. This then increased by about 100,000mt to reach more than 150,000mt after Intermalt — an Interflour subsidiary partly owned by the Australian grain handling cooperative CBH — opened a new malting facility in Vietnam. Australia has supplied 80 per cent (120,000mt) of barley imported into Vietnam. Nonetheless, that amount represents less than 1 per cent of Australia's total barley exports and is less than the total amount of malt Australia exports to Vietnam.
- In the future, a feasible doubling of Intermalt's malting capacity to 280,000mt of barley throughput would see total malt barley imports increase to about 330,000mt. With a 4 per cent annual increase in beer production up to 2030, this would still leave a total malt import requirement of about 490,000mt by 2030, which is similar to the current import requirement.
- Vietnam does not import barley for feed despite its high suitability for their feed rations. Work aimed at familiarising Vietnamese feed millers with the virtues of Australian feed barley, particularly its ease of use and general hygiene, may provide an opportunity to expand and diversify Australia's markets for export feed barley.

*From 2002 to 2016, barley imports to Vietnam have fluctuated between 40,000 and 50,000mt.*



# Introduction

Vietnam is experiencing rapid economic and social change. It is currently the third most populous nation in South East Asia with about 96 million people, including an emerging middle class that will double from 13 per cent of the population in 2017 to 26 per cent by 2026. Fast and consistent economic growth is likely to see Vietnam outpace the rest of South East Asia (and much of the rest of the world) in economic growth and development over coming decades.



These changes present important opportunities for Australian grain exports. Wheat is the second staple cereal in Vietnam (after rice) and is growing in popularity. Similarly, beer is the preferred alcoholic beverage, with beer consumption doubling over the past decade. Vietnam is now one of the top 10 beer markets in the world.

Australia currently occupies a dominant position in supplying milling wheat to Vietnam and is a preferred supplier for both bread and noodles manufacturing. Furthermore, the International Trade Centre has identified Vietnam as among the top 10 wheat export growth opportunities for Australia towards the early 2020s (ITC 2018). Similarly, Australia is the largest and most consistent supplier of malt and malt barley to Vietnam. However, the competitive landscape for international grain trade continues to change with low-cost producers targeting Vietnam and other important markets in South East Asia. Since 2011, the value of Australia's grain exports to Vietnam has remained steady or declined slightly and its market share is diminishing.

As the Australian grains industry strives to build enduring long-term profitability, the industry needs to understand its changing position in the Vietnamese grain market. How important is Vietnam to the Australian grains industry and how well positioned is Australia? Can it maintain its preferred position in wheat and barley and take advantage of the compelling growth opportunities? What is the potential upside, how long will it endure and what are the factors underpinning the stability of Vietnam as a major long-term market for Australian grain? To facilitate answering these important questions, this report provides an overview of Vietnam's grain market and economy to better understand the trends, prospects and future actions for Australia.



# Country profile

## Economic growth

Vietnam's economy has experienced sustained and rapid growth over the past 30 years and that growth is set to continue as Vietnam transitions from a factor-driven economy (natural resources; low skilled labour) to an efficiency-driven economy (more efficient production; higher wages). Long-term economic growth has averaged more than 13 per cent per annum since 2000, with per capita growth at 5.1 per cent per annum (IMF 2017).



*Vietnam's economy is rapidly growing and its workforce is modernising*

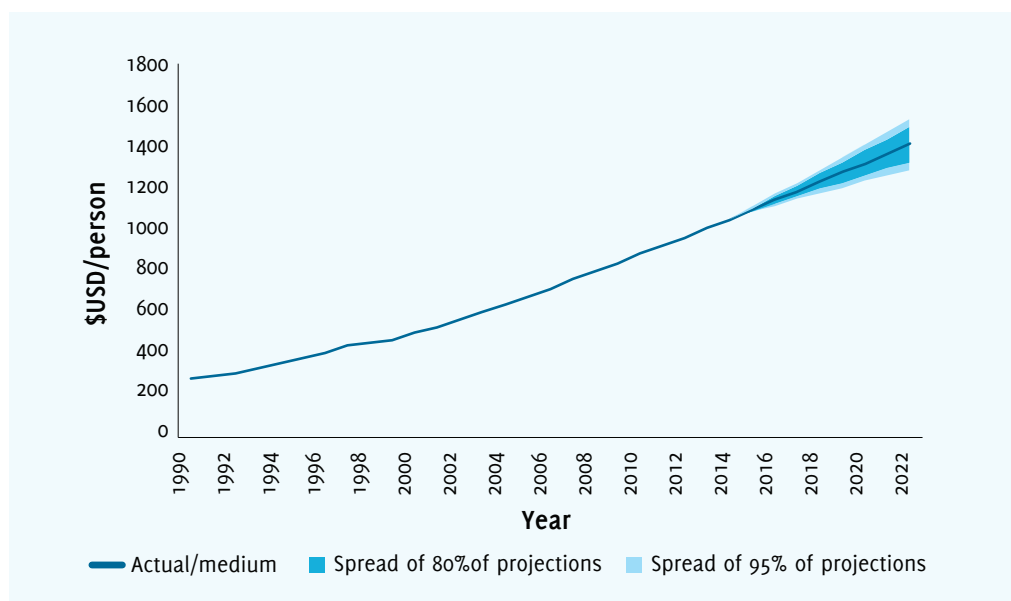
Short-term economic prospects for Vietnam are stable and positive, barring external shocks (World Bank 2018). The tight confidence intervals shown in Figure 1 suggest that even for pessimistic scenarios there is still an expectation that growth will be positive, at least to 2022. This is consistent with the fact that economic growth has been remarkably stable in Vietnam, with volatility among the lowest in the world and declining (World Bank and Ministry of Planning and Investment of Vietnam 2016).

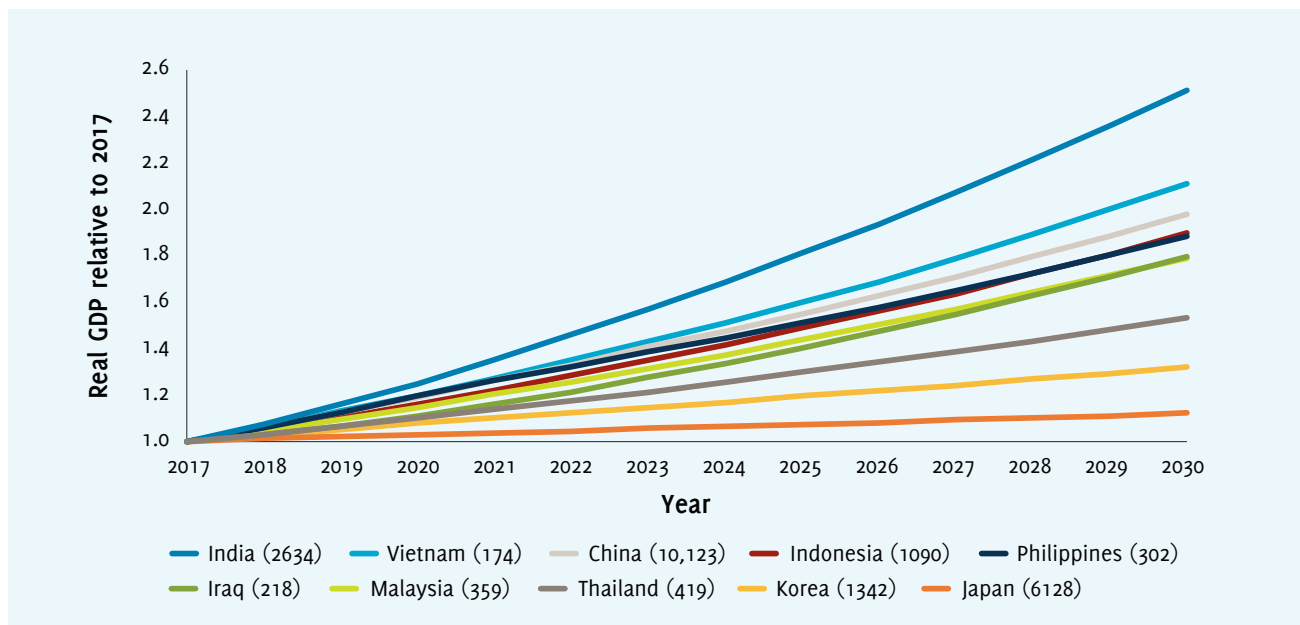
Longer term growth projections are also strongly positive, although there is more uncertainty. The United States Department of Agriculture (USDA) predicts that, compared with 2017, Vietnam's economy will more than double in size by 2030 (USDA 2018). This is a greater expansion in percentage terms than any other country in Australia's top 10 wheat exporting markets, apart from India (see Figure 2). Similarly, in an analysis of how the global economic order is likely to change by 2050, PwC (2017) has Vietnam jumping 12 places in the global GDP rankings, from 32nd into the top 20 by 2050, the largest move of any country. This momentum is likely to be driven by capital investment and technological progress that deliver real labour productivity improvements and strong growth in the value of goods and services produced (see Figure 3).

Further indications of the robustness of future growth in the Vietnamese economy is its accompanying integration with the world economy, allowing more sophisticated and stable trading relationships.

Figure 1  
Five-year forecast GDP  
for Vietnam

Source: World Bank (2018)





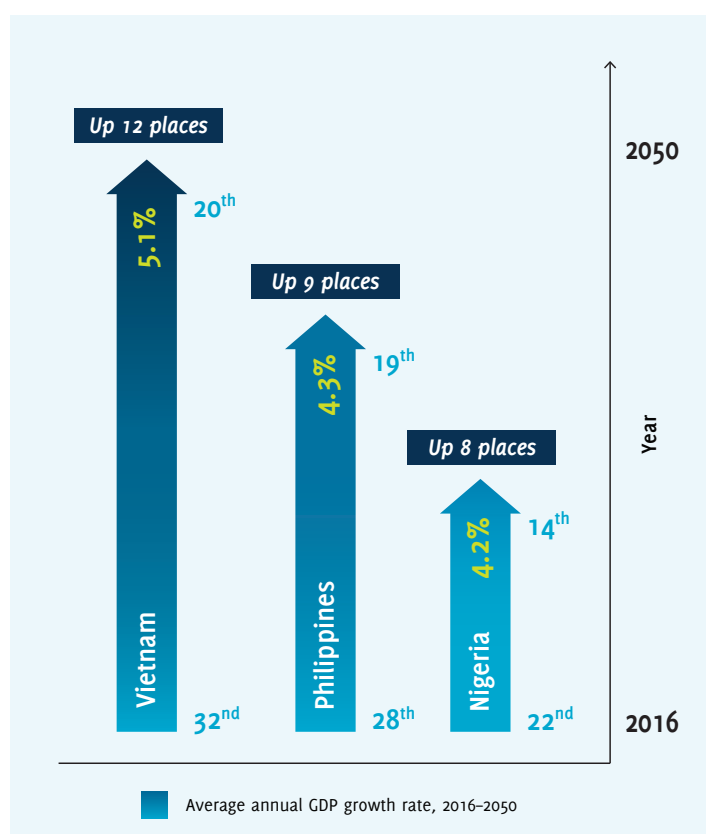
**Figure 2**  
**Estimated real GDP to 2030 relative to 2017 for the countries that constitute Australia's top 10 wheat export destinations**  
**Note: Real GDP in US\$ billions in 2017 indicated in brackets after each country name in the legend**

Source: USDA 2018

Vietnam became the 150th member of the World Trade Organization in 2007. Vietnam is a member of the Association of Southeast Asian Nations and hence is committed to the ASEAN Free Trade Area (AFTA). Together with the ASEAN countries, Vietnam has signed trade agreements with China, the Republic of Korea, Australia and New Zealand (AANZFTA), India, Chile and Japan. It also signed a bilateral trade agreement with Korea in 2015, as well as a trade agreement with the Russian-led Customs Union block that has been in effect since October 2016. Vietnam has completed all bilateral negotiations of the Trans-Pacific Partnership (TPP) free trade agreement but has not yet ratified the agreement. In February 2016, Vietnam completed negotiating a free trade agreement (FTA) with the European Union and is waiting for the Council of Ministers for their ratification. Vietnam is also currently negotiating an FTA with the countries of the European Free Trade Association (Norway, Iceland, Liechtenstein and Switzerland).

Australian wheat enjoys duty free access to Vietnam under its FTA as does wheat from Russia, while US wheat attracts a 5 per cent import duty. In addition, in November 2018 the Vietnamese government announced that it would enact stricter quarantine measures for grain contaminated with Canadian thistle (*Cirsium arvense*). This initially resulted in the slowing of imports of North American wheat; however, its full impact is yet to be determined.

Growth in Vietnam's economy over the past two decades has also been accompanied by complex structural, demographic and income distribution changes that impact consumption patterns within the country, including expectations about the type and quality of food people will demand in the future.



**Figure 3**  
**Vietnam is predicted to have the greatest move up the global GDP rankings by 2050, followed by the Philippines and Nigeria**

Source: PwC 2017



## Population growth

Vietnam has the third largest population in South East Asia and continues to grow, but growth is slowing and the population is ageing. In 1980, the fertility rate was five children per female but this decreased to two children per female by 2015, which is close to the population replacement rate of 2.1. It is expected that the fertility rate will fall slightly further and stabilise at about 1.9 over the next decade (UN 2017).



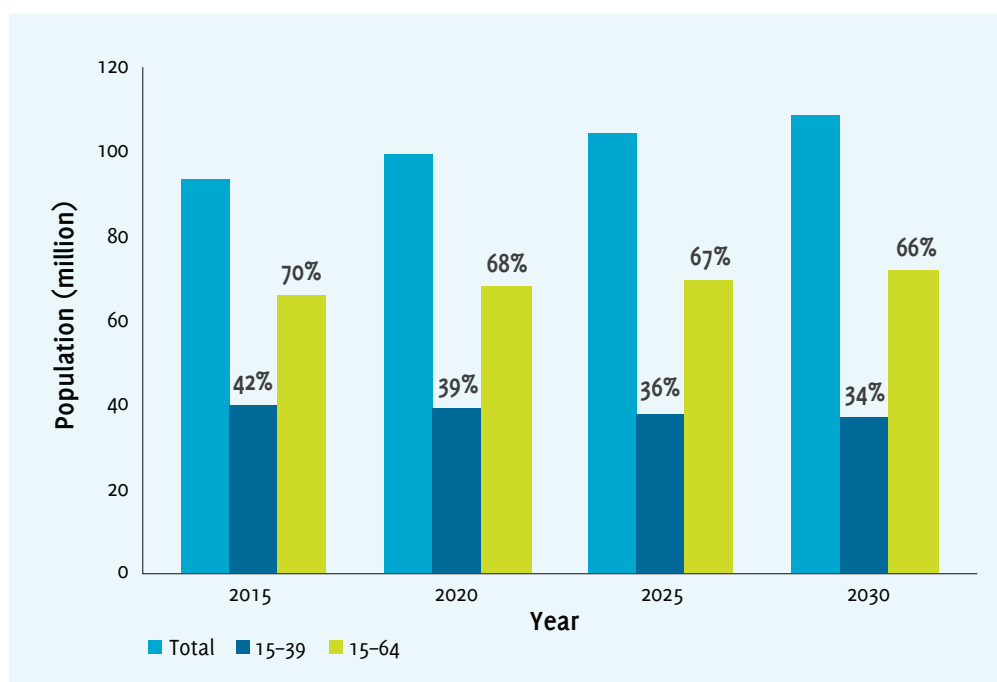
*Vietnam's population growth is slowing and ageing. The 70–79 age group will grow by 137 per cent or 3.5 million people between 2015 and 2030 while the fertility rate will fall to 1.9 – just below replacement rate*

By 2030, Vietnam's population will have increased by 13 million to a total of 108 million (see Figure 4). However, the total working age population (aged 15–64) will have increased by only about six million people and so in proportional terms will decrease from 70 per cent of the population in 2015 to 66 per cent in 2030. A greater contrast will have occurred in the proportion of the population aged between 15 and 40, which in 2017 made up the largest share of the country's gross income (Euromonitor 2018a). By 2030, the number in this age bracket will have decreased in absolute terms by about 3.5 million people, shrinking from about 42 per cent of the population in 2015 to 34 per cent in 2030. These changes contrast with changes in Indonesia and the Philippines, which will both continue to see an increase in the total number of people in this age bracket by 2030, but are similar to the decreases expected for China and South Korea (UN 2017).

Net migration is negative but slowing. Between 2015 and 2030, it is expected that about 40,000 more people per year will emigrate from Vietnam than migrate to it. This is slightly lower than the expected average net migration rate for the Asia-Pacific region over this period. It is also substantially lower than the net migration rate between 2000 and 2014, which was negative 120,000 people. The main factor influencing outwards migration from Vietnam has been a relatively young, increasingly educated population searching for non-rural opportunities that have been scarce.

**Figure 4**  
Population changes in Vietnam in different age brackets (total population, working age (15–64) and younger working age (15–39), 2015–30. Percentage figures indicate the proportion of the population in each age bracket

Source: UN 2017



## Income and consumption

Despite relatively slow growth in the younger population, the projected fast-paced economic growth is likely to produce steady increases in total income and expenditure. Up to 2030, total consumer expenditure is forecast to rise by about 4.6 per cent per annum, which equates to a cumulative increase over this period of just over 70 per cent (Euromonitor 2018a). This level of consumption growth is lower than for India, the Philippines or China and about the same as Malaysia and Indonesia, but considerably higher than Japan or South Korea (see Table 1).

Kingwell (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 with fruit, milk and meat. As incomes rise in Vietnam, 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.

**Table 1**  
Forecast annual growth in total consumer expenditure for selected countries, 2018–30

Country	Consumption growth 2018–30 (%)
Philippines	6.9
China	5.4
Indonesia	4.9
Malaysia	4.7
<b>Vietnam</b>	<b>4.6</b>
Thailand	3.0
South Korea	2.2
<b>Australia</b>	<b>2.3</b>
Japan	0.6

Source: Euromonitor

However, income levels in Vietnam are still among the lowest in South East Asia. For example, in 2017 GDP per capita in Vietnam was US\$2111 compared with US\$3346 for Indonesia and US\$5815 for Thailand. Furthermore, the GDP per capita in Vietnam is the lowest of Australia's top 10 grain markets except for India (figures for Yemen are not available; World Bank 2018). Even with growth projections at the top end of the expected range over the next 15 years, average incomes in Vietnam will still be lower than those in Malaysia or South Korea in the early-2000s (World Bank and Ministry of Planning and Investment of Vietnam 2016). At these relatively low incomes, many Vietnamese consumers will continue to devote a high proportion of their income to food necessities. Therefore, the expected growth in expenditure on food and non-alcoholic beverages in Vietnam is still projected to be just over 4 per cent per annum, which is only slightly lower than growth in consumption overall (Euromonitor 2018a).

Another factor impacting on patterns of food consumption as incomes rise in Vietnam is how evenly income is distributed. Income distribution in Vietnam is uneven by both regional and global standards and the income gap continues to expand (Euromonitor 2018a). For example, the lowest socioeconomic group in Vietnam will account for about half of the expected population rise by 2030. Nevertheless, there is an emerging middle class – currently accounting for 13 per cent of the population, which is expected to reach 26 per cent by 2026 (World Bank 2018a).

The diverging growth in income among sections of the population will increasingly polarise the market for food and drinks in Vietnam. A large proportion of the population is expected to continue to have limited discretionary spending power, with essential items such as food and non-alcoholic beverages comprising about 50 per cent of their consumption to 2030. Whereas a smaller proportion of the population will likely have greater discretionary spending power, demanding a greater range of foods with improved quality as well as a broad range of other discretionary consumer items (Euromonitor 2018a).

Part of the reason for Vietnam's increasing income gap is that rural areas lag behind urban areas in terms of income due to limited access to education and employment opportunities. Rates of urbanisation within Vietnam will therefore affect both income growth and the change in food consumption patterns.

*Despite relatively slow growth in the younger population, the projected fast-paced economic growth is likely to produce steady increases in total income and expenditure*





## Urbanisation

Vietnam had fewer than 14 million urban residents in 1990. By 2016, this had increased to 33 million, with urban areas contributing more than half the country's GDP. However, Vietnam lags behind much of Asia in its level of urbanisation (see Figure 5). Despite the steady growth in Vietnam's urban population, only 35 per cent of the population lived in urban areas in 2017, the lowest level among Australia's top export grain markets, except for India (33 per cent) (UN 2018).

A comparison between urbanisation rates in Vietnam and Indonesia indicates that Vietnam is about 25 years behind Indonesia in its degree of urbanisation (see Figure 6). Very low levels of urbanisation in Vietnam during the postwar period until 1990 coincided with a rapid rate of urbanisation in Indonesia. Consequently, the urban population in Vietnam is not expected to exceed the rural population until well after 2030, whereas in Indonesia this had already occurred by 2010.

Kingwell *et al.* (2018) explained the relationship between urbanisation and diet in the context of Indonesia. They found that the time-pressed lifestyle of the average urban-based office worker, together with greater affluence, provided both the motivation and capability to demand convenience foods that could be purchased cheaply and 'on the run'. Other social trends, such as the participation of women in the workforce, particularly in urban service industries, further reinforced 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). At 73 per cent, Vietnam already has a high level of female participation in the workforce, substantially higher than Indonesia (51 per cent) or Australia (59 per cent), but much of this employment is in rural agriculture (World Bank 2018a). The percentage of women employed in the service industries is only 35 per cent, which remains low compared with Indonesia (55 per cent) and Australia (91 per cent) (World Bank 2018a).

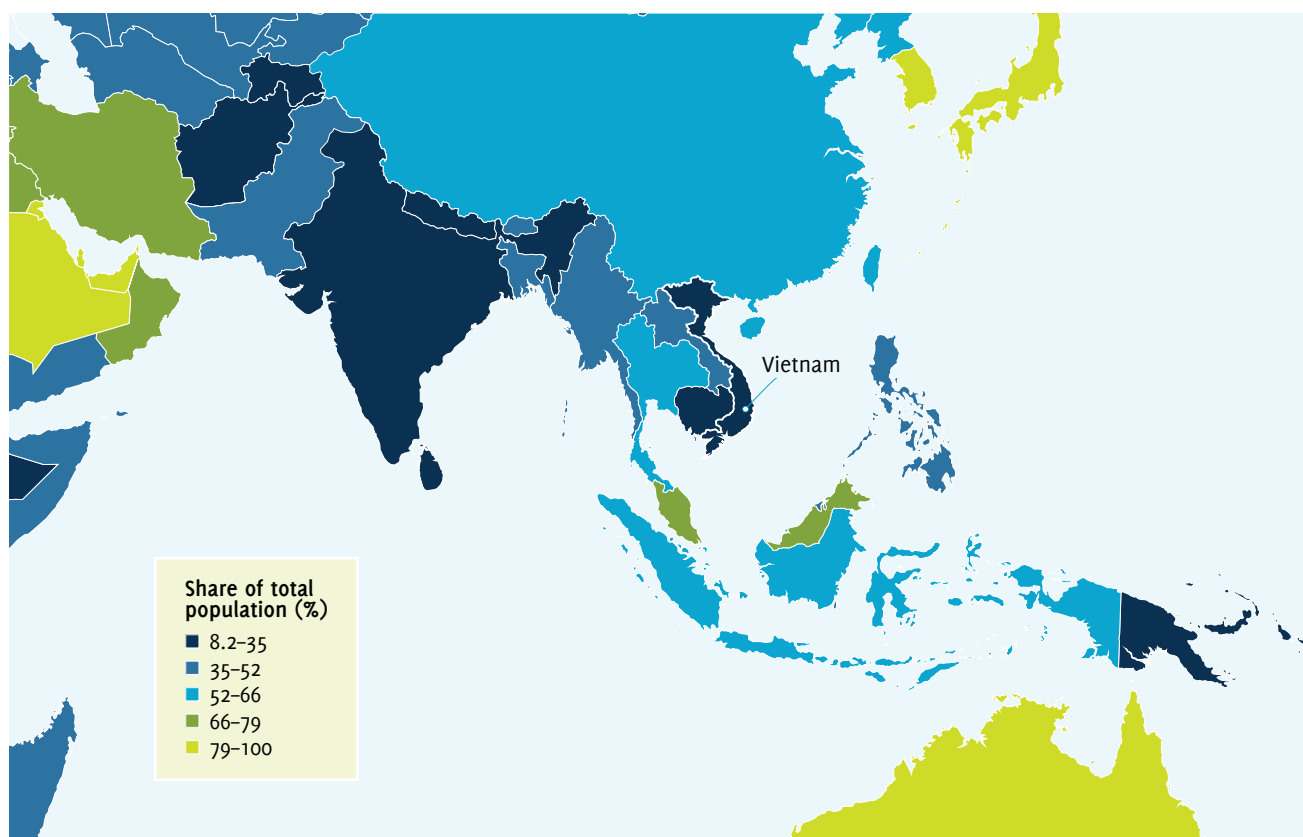


Figure 5  
Urban population as a share of total population in 2017

Source: UN 2018

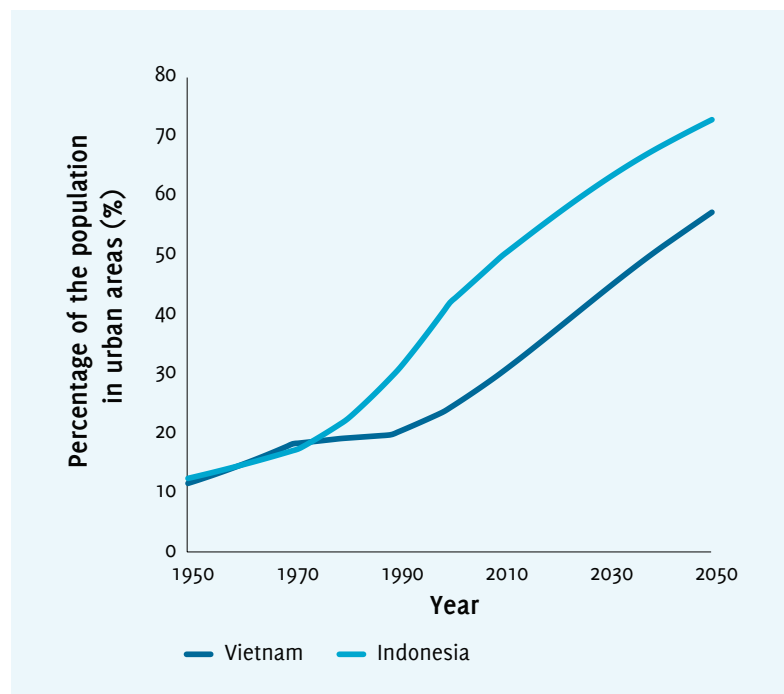


*Ho Chi Minh City with 12 million inhabitants is the most populous metropolitan area in Vietnam. The city's population is expected to grow to 13.9 million by 2025 but even by this date Vietnam's population will still be predominantly rural*

Pingali (2007) cited family size as a further factor influencing consumption patterns, associated with urbanisation. Low fertility rates, leading to fewer family members, may enable families to eat outside the home more often. Vietnam already has a low fertility rate of two children per female, substantially lower than the fertility rate of Indonesia at an equivalent level of urbanisation.

**Figure 6**  
Percentage of the population living in urban areas in Vietnam and Indonesia projected to 2050

Source: UN 2018



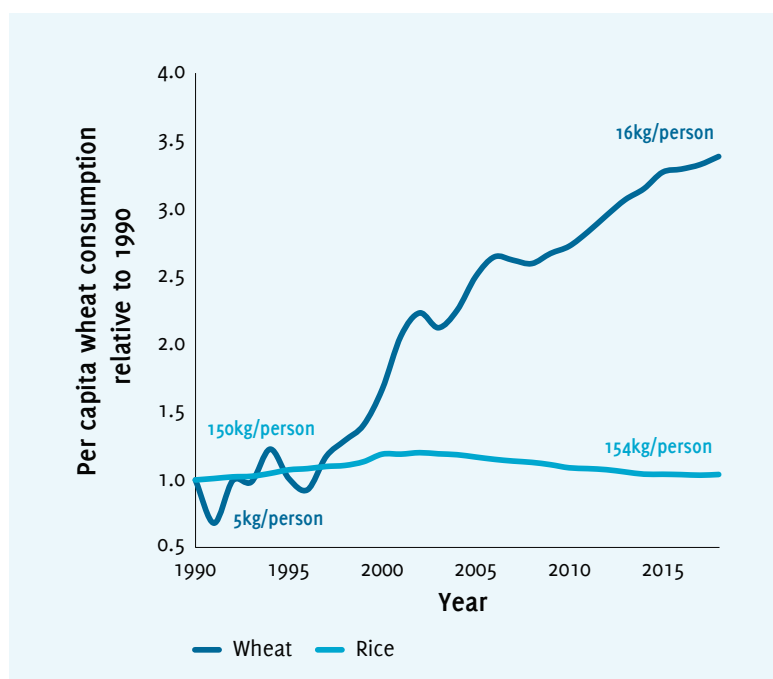


# Wheat

## Wheat for food

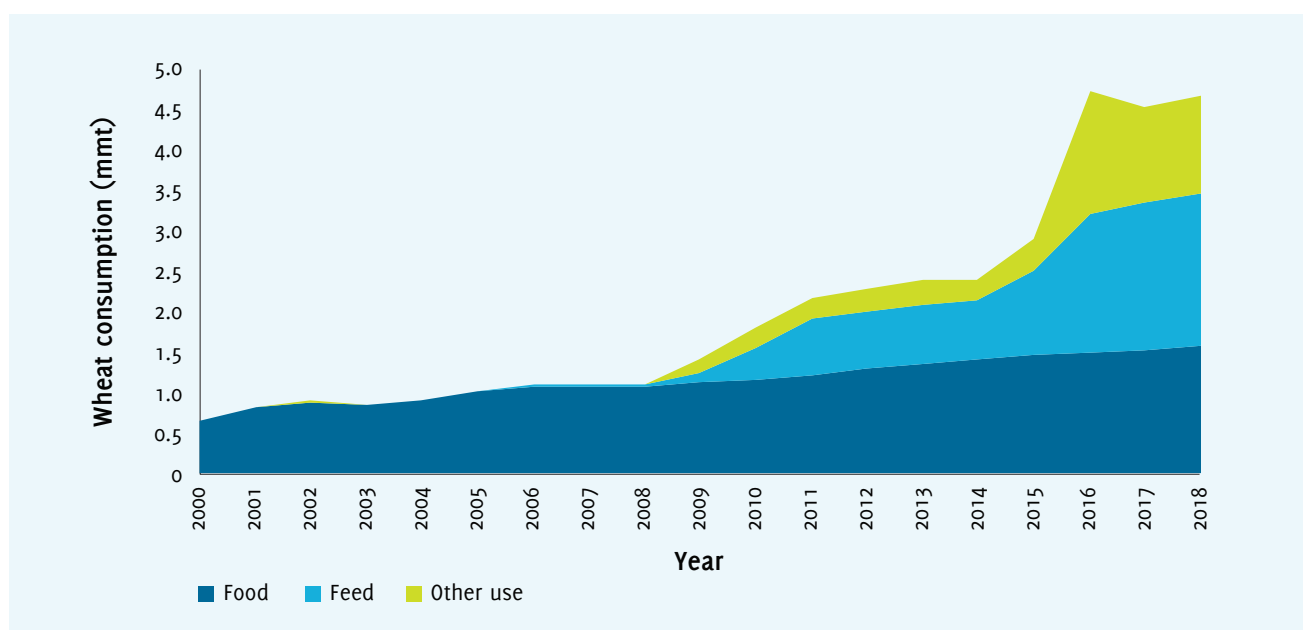
Wheat use in Vietnam has increased rapidly from below 1mmt in 2000 to 4.5mmt in 2018 (see Figure 7). Consumption of wheat as food has increased steadily while consumption within the animal feed industry has jumped from nearly zero up to 3mmt in the space of 10 years.

From 1990 to 2018, the compound annual growth rate in per capita wheat consumption for food in Vietnam averaged about 5.6 per cent each year, rising from about 5kg per capita in 1990 to more than 16kg per capita in 2018 (see Figure 8). This growth contrasts with rice consumption, which has remained more or less stable over this period, although it should be noted that the average Vietnamese person in 2018 consumed almost 10 times more rice (154kg per capita) than wheat in a year (OECD/FAO 2018). Indeed, Vietnam remains one of the highest per capita consumers of rice and the lowest per capita consumers of wheat for food in Asia (see Table 2).



**Figure 8**  
Change in total food wheat or rice consumption in Vietnam relative to levels consumed in 1990

Note: The graph shows annual average consumption levels in 1990 and 2018  
Source: OECD/FAO 2018



**Figure 7**  
Major uses of wheat in Vietnam, 2000–2018

Source: OECD-FAO 2018

Given the relatively low levels of wheat consumption currently in Vietnam, there is still substantial room for consumption to grow (Table 2). Combined with changing demographics and rising incomes, we expect that per capita wheat consumption will continue to grow over the next decade but the pace of growth may be slightly slower than has occurred over the past decade.

**Table 2**  
Per capita wheat and rice consumption for food in selected Asian countries, 2018

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

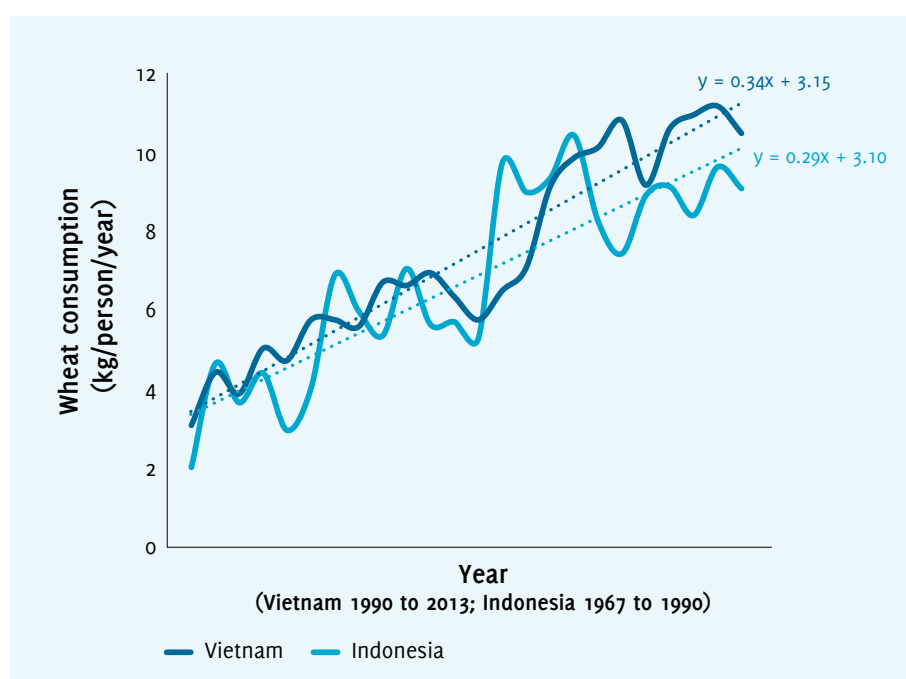
Source: OECD/FAO 2018

As a comparison, when Indonesian GDP per capita and urbanisation levels were similar to those of Vietnam now, consumption levels for wheat as food in Indonesia were at similar levels and grew at a similar pace, as has occurred in Vietnam over the past 20 years (i.e. 1967–1990; see Figure 9). The subsequent period after 1990 saw Indonesian per capita consumption of wheat as food continue to grow at nearly 4 per cent each year over the next 12 years. If a similar scenario occurs in Vietnam, then the forecast rate of increase in the consumption of wheat for food will be similar to the Euromonitor (2018) forecast rate of food and beverage consumption for Vietnam as a whole (i.e. estimated at 4.1 per cent per annum).

However, we know that grains form a diminishing share of diet by weight and calorie intake as incomes increase (Kingwell *et al.* 2018). Therefore, for wheat consumption to increase at a similar pace as food consumption in general, then the consumption of other grains, such as rice, will need to remain static or increase only very slowly. This is possible given the already high level of rice consumption and its static consumption trend in recent years. Under this scenario, a 3 per cent annual increase in the consumption of wheat for food in Vietnam over the next 12 years will see total rice and wheat consumption increase by less than 0.7 per cent annually.

**Figure 9**  
Per capita wheat consumption in Vietnam and Indonesia offset by 25 years to when levels of urbanisation were similar in both countries

Source: OECD/FAO 2018





Importantly, the rate of growth of the Vietnamese population over the next 10–15 years will slow and the population will age. These factors will act to slow growth in the total demand for wheat, counteracting to some degree the increase in the per capita consumption of wheat for food. A 3 per cent annual increase in the consumption of wheat for food until 2030, under the medium population projections of the United Nations, will see total demand for wheat for food grow to 2.5mmt, which is an increase of about 0.9mmt over the next 12 years. However, 3 per cent annual increase in wheat for food consumption is higher than the OECD/FAO projections. The OECD/FAO (2018) estimated that wheat for food consumption in Vietnam will grow at about 2.6 per cent per annum from 2017 to 2027. Using these figures, total wheat for food consumption in 2030 will total only about 2.3mmt. However, the OECD/FAO forecasts are likely to be overly conservative. As a comparison, the USDA's international long-term projections to 2027 have wheat food, seed and industrial consumption growing at 3.5 per cent annually (USDA 2018).

It should be noted that even if we assume high levels of growth in wheat for food consumption that are close to the forecast increase in total food and beverage consumption as explained above (i.e. 3 per cent), then by 2030, the level of per capita wheat consumption in Vietnam will still be low compared to other South East Asian countries, only equating to the current Indonesian per capita consumption level.

Currently, Vietnam's wheat milling capacity is about 3.5mmt annually (Quan Tran 2018). This is more than twice the current demand for wheat for food; indeed, more than the demand estimated above using 3 per cent growth to 2030. Four mills dominate wheat milling in Vietnam: Vimaflour, MeKong, Interflour and Bing Dong. These mills account for about 50 per cent of market share. This large milling capacity suggests the

industry is anticipating strong future growth in the consumption of wheat for food, as explained above, but may also point to expectations of growth in flour exports and the increased use of milled wheat for aquafeeds.

Flour exports have increased by more than 20-fold since 2001 (see Figure 10), with Vietnam being the largest exporter in South East Asia. Flour is mainly exported regionally with the main destinations being Thailand and the Philippines. Nevertheless, at about 0.14mmt in 2016, flour exports still represent only about 4 per cent of Vietnam's milling capacity. Possibly, faster growth in demand for flour may be expected from the aquafeed industry, which has had an annual growth rate of nearly 12 per cent since 2005 (see Figure 14).

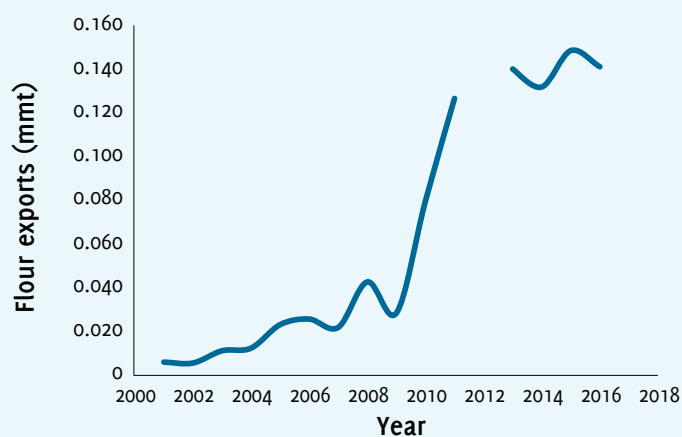


*Vietnam has ample flour production capacity allowing for future expansion of demand.*

**Figure 10**  
**Wheat or meslin flour**  
**exports from Vietnam**

*Note: Accurate data not available for 2012*

Source: ITC trade map



## Wheat for feed

The Vietnamese government does not support domestic corn production through protective policies and thus wheat imports compete on an economic basis with corn and other potential sources in the animal feed market. Pigs, aquaculture and poultry together account for 97 per cent of the feed use in Vietnam.

Wheat flour is used in the production of aquafeeds primarily for its functional physical properties but also, depending on the species, as an energy source. Wheat starch is used as a carrier for the oil and protein components of the feed and, through partial heat treatment, adjustments to the solubility and integrity of the pellets are made to match the requirements of different aquaculture species. Even at relatively low inclusion rates, wheat is a highly effective binding agent in feed products containing relatively high levels of less 'pelletisable' ingredients such as dried distiller's grain, palm kernel meal and canola meal. The widespread use of bagged feed in Vietnam, as in many other parts of South East Asia, means that pellet quality is particularly important for feed mills.

Some aquafeeds contain more than 30 per cent wheat but generally accepted inclusion rates for wheat flour are about 10–20 per cent (see Table 3). Industry experts estimate that 10 per cent of all milled wheat in Vietnam is used in aquafeeds. In addition, the importance of wheat and other protein sources for aquafeeds is increasing as the availability of fish meal declines and prices rise. Vital-wheat gluten, for example, has been identified as a potential protein source to replace fish meal in some rations (Apper-Bossard *et al.* 2013) as well to increase pellet stability, and is often added to raise gluten levels to 34–36 per cent.

As an ingredient for pig, poultry and other livestock feeds, wheat is used mainly as an energy source. Inclusion rates of wheat in these livestock feeds are more variable than in aquafeeds, depending on the price of wheat relative to the price of other feed sources. The integrity of the wheat source, however, can also have a bearing on inclusion rates, as grains with low levels of mycotoxin or other contaminants are used to improve lower quality feed sources in order to maintain animal performance.

**Table 3**  
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			28–30		
Wheat middling	4–30					
Groundnut cake				11–16		

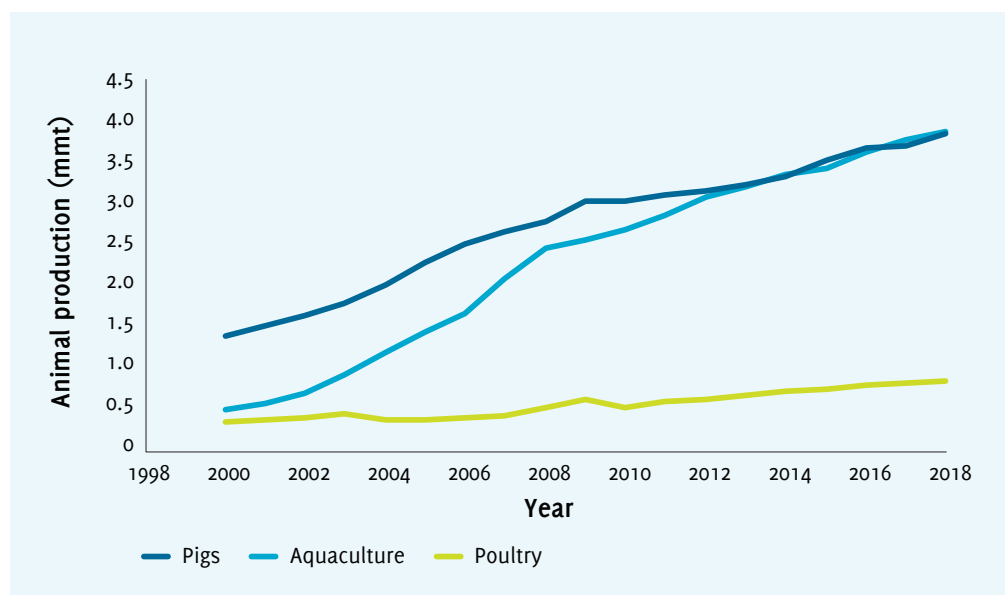
Source: Hasan *et al.* 2007



**Figure 11**  
**Production of pig meat, poultry meat and aquaculture products**

*Note: Poultry production in 2000 supplied nearly all domestic consumption but represented only about 60 per cent in 2018. Pig meat production supplied 95-105 per cent of consumption during the entire period*

Source: OECD-FAO 2018



Aquaculture, pig and poultry production have been growing annually at 11.8, 5.6 and 5.2 per cent respectively since 2000, both for local consumption and export, and have outpaced growth in the consumption of wheat as a food, which had a 4.4 per cent compound annual growth rate during this period (see Figure 11). Vietnam largely supplies its own needs in pig meat but still imports about 40 per cent of its poultry consumption, despite a steady rise in its local production. Growth in aquaculture – the fastest growing of the animal feed industries – has seen Vietnam become one of the top 10

exporters of aquaculture products in the world, the second largest producer of aquafeeds and a major exporter, albeit a long way behind China (see Table 4). Strong projected growth of aquaculture production in Vietnam and other Asian countries will see continued expansion in Vietnam's aquafeed production and export. Indeed, Figure 12 suggests that as worldwide demand for fish and related products continues to grow, and supply from wild-catch fisheries stagnates, the production of aquaculture products will become increasingly important in meeting world demand.

**Table 4**

**Aquafeed production and aquaculture production in 2016 and forecast for 2030 for the main producers worldwide**

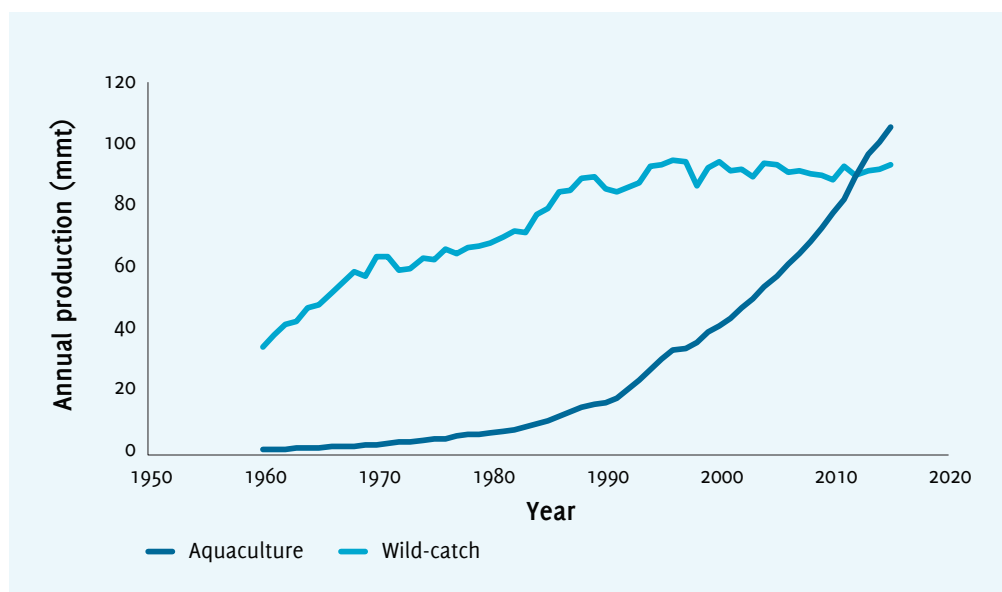
Country	Aquafeed production	Aquaculture production 2016	Forecast aquaculture production 2030	Increase (%)
China	15.58	49.24	64.57	31
Vietnam	3.1	3.62	5.08	40
India	1.84	5.7	8.21	44
Norway	1.71	1.33	1.72	29
Indonesia	1.25	4.95	8.25	67
Bangladesh	1.2	2.06		
Chile	1.1	1.03	1.31	27
Thailand	1.079	0.96	1.31	36
Brazil	0.9	1.03	1.31	27
Canada	0.8	0.2	0.25	25
Egypt	0.6	1.37	2.3	68
Philippines	0.28	0.8	1.1	38
South Korea	0.2	0.51	0.63	24

Source: FAO 2018; Alltech 2018



**Figure 12**  
Worldwide annual production of wild-catch fisheries and aquaculture (data inclusive of all aquatic species, including aquatic animals and plants)

Source: World Bank (access via Ritchie and Roser, 2017)



Vietnam's strong growth in consumption of meat is remarkable given the country's relatively low per capita GDP (see Figure 13). In 1990, relative to comparable countries in the region, Vietnam had one of the lowest levels of per capita meat consumption with just over 15kg per person consumed annually. Only Indonesia had a lower level of consumption. However, over the next 23 years to 2013, meat consumption more than tripled to over 55kg per capita, one of the highest in the region and higher than any other country at a comparative level of per capita GDP. It is likely that the growth in meat consumption will moderate in the future, although still grow, possibly following a trajectory similar to that of China.

The growth of these industries has triggered the increased use of wheat as a feed. However, the use of feed wheat is variable and has not always correlated strongly with total feed demand from the aquaculture or animal production industries. Part of the rise in the use of wheat as feed has been the industrialisation of the feed industry, as international feed millers entered the market. Consequently, the industry's reliance on feed mixed

either on-farm or by small local millers (and which uses only local ingredients) has given way to industrialised feed formulations. An important additional factor controlling the amount of wheat going into feed rations is the price and availability of imported wheat relative to local and imported alternative energy sources, such as rice, cassava or corn.

Negligible amounts of wheat were used as feed up to 2009 (see Figure 14). Indeed, the trend in total wheat imports closely mirrored the trend in wheat consumption for food (see Figure 16). In 2009, the wheat price declined relative to the price of corn and – given the continued expansion of the animal industry – there was a spike in the use of wheat for feed (GSOV 2018). Following this period of low wheat prices, in 2011 the use of feed wheat stabilised at about 0.9–1mmt, despite the relative price of wheat increasing against corn. However, another fall in relative wheat price after 2015 saw a tripling in feed wheat use to about 3.2mmt and consumption has remained at this level up to 2017.

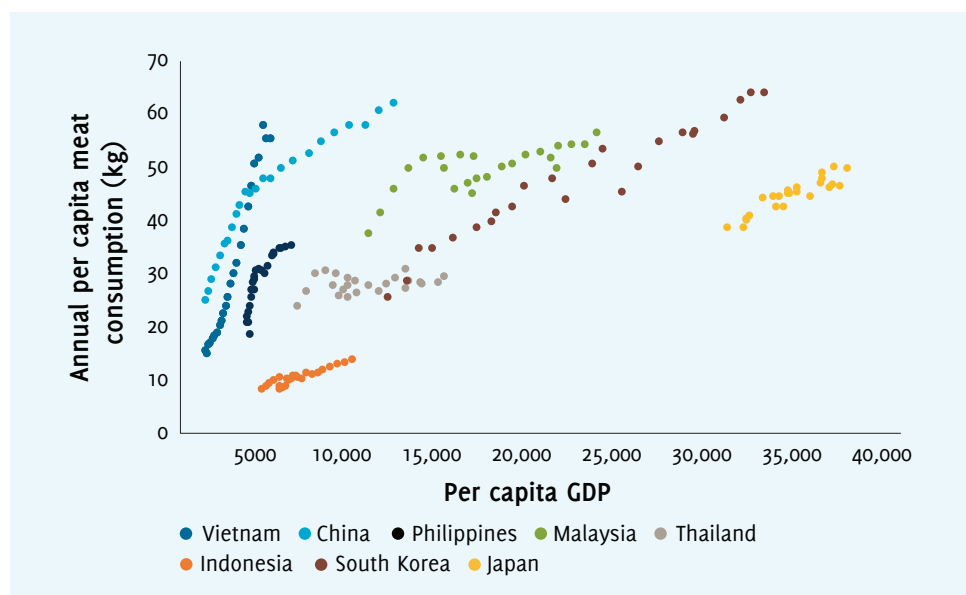


Intensive production of whiteleg shrimp (*Litopenaeus vannamei*) in Vietnam

Part of the rise in the use of wheat as feed has been the industrialisation of the feed industry, as international feed millers entered the market.

**Figure 13**  
Average annual per capita meat consumption for selected countries in Asia compared with per capita GDP measured in constant 2011 international dollars (the use of international dollars corrects for price differences between countries). Figures do not include fish or seafood

Source: FAO and World Bank (accessed via Ritchie and Roser 2017)



Estimates of total feed production and the use of wheat as feed are variable. Vietnam's Ministry of Agriculture and Rural Development (MARD) reported that 23mmt of animal feed was produced in 2017, citing that 'local' industry had the capacity to produce 12.4mmt while production stimulated by foreign direct investment had the capacity to produce about 15.7mmt (reported by *Vietnam News* 2018). This is considerably higher than the total feed estimate provided by the OECD/FAO (2018) presented in Figure 14. Similarly, Stoxplus (2016) estimated Vietnamese feed production in 2015 at 13.2mmt of industrial feed and 6.3mmt of 'self-made' feed. We have assumed therefore that figures presented by the OECD/FAO (2018) in Figure 14 represent the industrial feed production sector without accounting for on-farm and small local feed producers.

Further assumptions are needed to estimate wheat used by on-farm or small mill producers. Up until relatively recently, on-farm or small mill producers predominantly used local ingredients for formulating feeds. However, Quan Tran (2018) reported that in 2016 a strong rise in local demand for animal feed resulted in a significant volume of imported ingredients

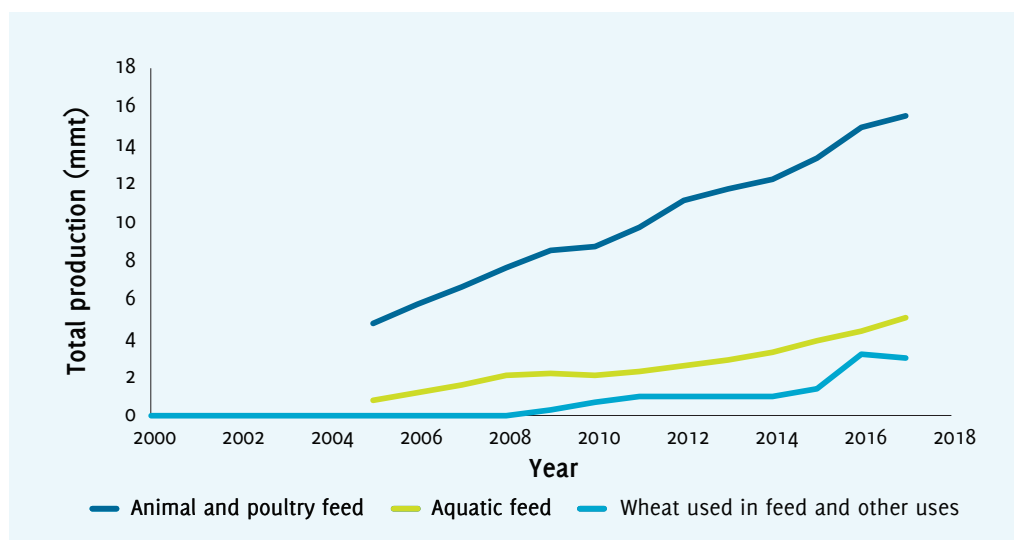
being used for on-farm and small local feed production. The OECD and FAO estimated that in 2016 there was a tripling in wheat being used for 'other purposes', rising from 0.4 to 1.5mmt. We have assumed therefore that 'wheat used for other purposes' as nominated by the OECD/FAO (2018) was mainly used as feed on-farm and in small local mills, and which comprised about 40 per cent of the feed wheat use in 2017.

An interesting aside for the animal feed industry in Vietnam as it further modernises and searches for improved efficiencies and alternatives to fish meal is the possible use of other grains to improve the functional properties of aquafeeds. Lupins have shown to be an effective source of plant protein for aquaculture diets; it brings added functional properties to feed pellets and has been trialled in a range of Asian aquafeed markets (Glencross 2008; Rajan and Bavitha 2015). Currently, at least one small feed manufacturer has been including 5–10 per cent lupin meal in feeds for hatcheries in Vietnam. Indeed, low-alkaloid Australian sweet lupin represents an alternative protein source for a range of animal feeds in Vietnam – not just aquafeeds.

**Figure 14**  
Total production of feed for animal and aquaculture uses and total use of wheat for feed and other uses

Note: Aquafeed does not include fish used as feed. The feed wheat figure is the sum of the OECD/FAO data specified as 'feed' and 'other uses'

Source: OECD/FAO 2018



## Wheat imports

Australia has been the largest and most consistent supplier of wheat to Vietnam by far over the past 20 years. On average, from 2000 to 2018, the amount of wheat Vietnam has imported from Australia has grown by 10 per cent per annum (see Figure 15). Australian wheat has primarily been used for food purposes together with wheat from Canada and the United States (US). However, the significant expansion in the use of feed wheat in Vietnam, which appears to have begun with Australian wheat, has mainly been supplied by wheat from the Black Sea region since 2016. This import of feed wheat has seen the Australian share of the total wheat imports decline but its share of the wheat for food market appears to have remained steady.

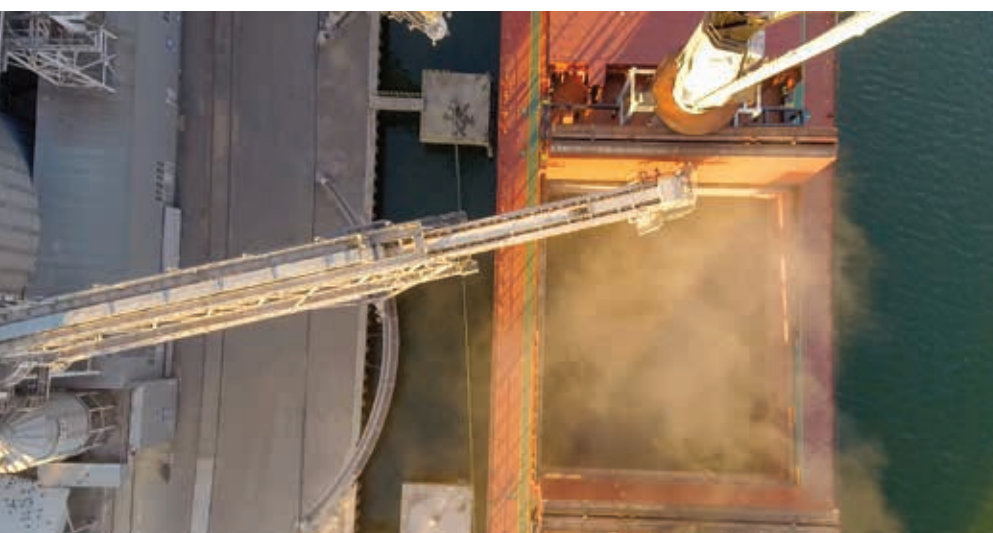
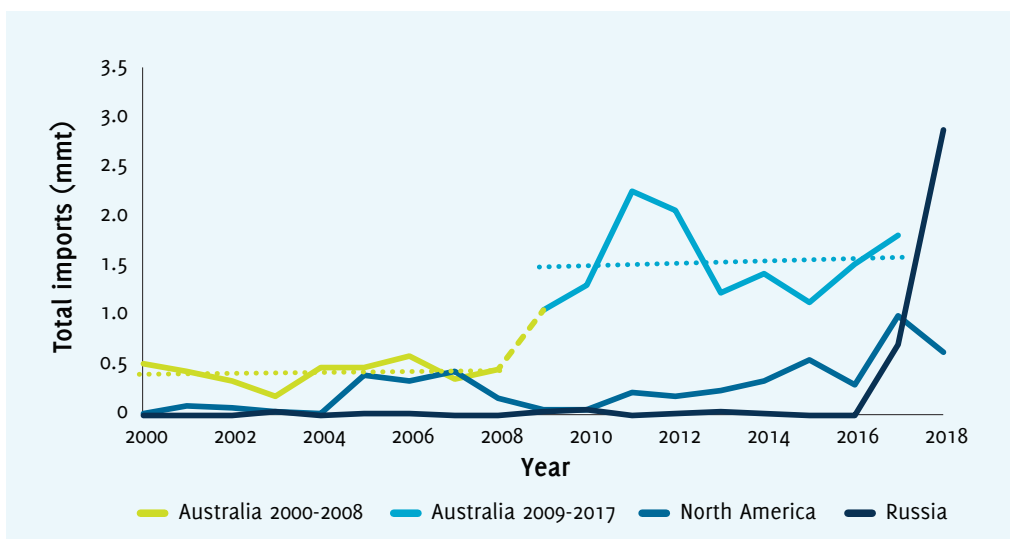
From 2000 to 2017, Australia has usually supplied more than 50 per cent of Vietnam's total wheat imports and, in some years, this increased to 90 per cent. In only three years (2003, 2007 and 2016) has Australia's proportion of total Vietnam's imports fallen to about 30 per cent, and in only one of these years (2003) has

Australia not been the largest supplier (the years 2003 and 2007 were years of low exports from Australia due to drought). However, in 2018 this pattern may have changed with Vietnam importing more than twice as much wheat from Russia than from Australia.

Closer examination of Australian wheat exports to Vietnam shows that growth can more accurately be represented by two phases. From 2000 to 2008, imports of Australian wheat by Vietnam averaged about 0.43mmt with a growth rate of only 1.4 per cent per annum. A step change in imports occurred after 2009 when imports grew rapidly by more than 1mmt. This change appears to be related to the beginning of the use of wheat for feed. From 2009 to 2017, imports of Australian wheat averaged about 1.5mmt and again grew by only 1.4 per cent per annum over this period, although volatility was high. If the unusually low 2018 import figure is included in the calculations, then import growth may be slightly negative over this period.

**Figure 15**  
**Imports of Australian wheat by Vietnam, 2000-18.** (the 2018 data are preliminary and have not been included in the estimate of the dash fitted line. If the 2018 line is included then the slope of the fitted line is slightly negative)

Source: UN OECD/FAO for food wheat; UN Comtrade (2018) for wheat imports 2000-16; GSOV for wheat imports 2017 and 2018



*Australia has been the largest and most consistent supplier of wheat to Vietnam over the past 20 years*



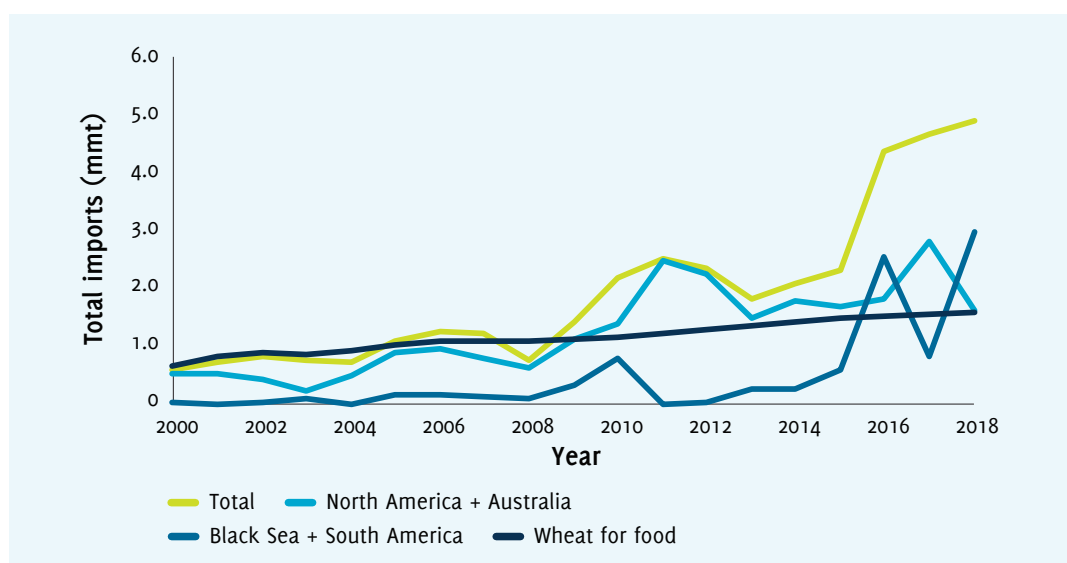


Figure 16

Vietnam wheat imports from Australia and selected regions: North America (Canada and US), the Black Sea (Romania, Bulgaria, Ukraine and Russia) and South America (Brazil, Paraguay and Argentina) and the total amount of wheat use for food

Note: the 2018 data are preliminary and the GSOV figures (2017 and 2018) do not include all Black Sea and South American import figures. Although the total figure includes all countries, some minor imports are not individually identified

Source: OECD/FAO for food wheat; UN Comtrade wheat imports for 2000–16; GSOV for wheat imports for 2017 and 2018

Imports from countries other than Australia have been highly variable, often fluctuating from almost no imported grain to substantial amounts. For example, Canada supplied about 1.4 per cent of Vietnam's total wheat imports (70kt) in 2016 and then 22 per cent (400kt) in 2017. Similarly, Vietnam imported almost no grain from Russia up until 2017 but imported more than 2.3mmt in 2018. However, if import figures are aggregated to form regional origins, then the pattern of import growth appears less variable (See Figure 16). This is best illustrated by combining imports originating from Canada and the US and shows that Vietnam has imported a relatively moderate but consistent amount of wheat from North America since 2005. The pattern of imports from the Black Sea region is less consistent, partly because of uncertainties with the data. The UN (Comtrade 2018) indicates large imports of wheat from Romania and Bulgaria (exporting through the Black Sea) but this is not evident in data available from Vietnamese government statistics (GSOV 2018). Nevertheless, it is evident that since 2016 significant quantities of grain have been imported from countries in the Black Sea region and to a lesser extent South America.

Figure 16 show that wheat imports were mainly used for food up until 2009 with total imports closely mirroring the estimated use of wheat for food. During this period, wheat from Australia, Canada and the US supplied on average 80 per cent of this wheat, except for 2002–04 when total imports from India, supplemented by China (data not shown), averaged more than 30 per cent.

Since 2009, the total import of wheat from Australia, Canada plus the US exceeded estimated food use of wheat, indicating that a proportion of this wheat was being used for feed as well as food. Given the high proportion of Australian wheat that was being imported and the average dollar values, it was most likely Australian wheat that was being used for feed. During 2010 to 2012, three years that saw a rapid increase in the level of wheat imports from Australia, the average value of Australian wheat was about US\$60 per tonne lower than the average value of North American wheat (See Table 5). This indicates that, for 2011 and 2012, a proportion of Australian wheat imports were supplied at feed prices, whereas before this the supply from Australia was of higher quality, higher priced milling wheat.

From 2013 to 2016, wheat imports from Australia, Canada and the US continued to exceed estimated food use (by about 10–20 per cent). In 2017, the excess was substantially higher at 80 per cent. This was partly due to the unusually high amount of Canadian wheat that was imported (0.96mmt) at low value (US\$207/t) together with a relatively high amount of Australian wheat (1.8mmt). Imports figure for 2018, while still preliminary, indicate that imports of Australian plus North American wheat almost exactly match the estimated food use.

The value of wheat imported from Australia and North America since 2013 has been at least US\$30–60/t higher than the value of wheat originating from the Black Sea region or South America, except for Canadian wheat in 2017 as mentioned above (see Table 5; MARD 2018). If we assume that all of this higher priced wheat is used in the food market, then it seems likely that food use of wheat is underestimated by the OECD/FAO, unless a proportion of the North American or Australian wheat is going to high-value uses other than food. Estimates from the USDA's local industry sources are that the total demand for milling wheat in 2018 was 2.1mmt (Quan Tran 2018). If this estimate is assumed to be accurate, it suggests that the food use of wheat is underestimated by the OECD/FAO by at least 0.2mmt, even after allowing for 20 per cent use in aquafeeds.

If we assume that wheat for food usage is about 1.8mmt rather than 1.6mmt as estimated by OECD/FAO, and that consumption will grow at a rate of 3 per cent per annum, then we estimate that future Vietnamese imports of wheat for food will be about 2.5mmt by 2030. This is similar to the estimate above using per capita wheat consumption and medium UN population growth projections. The amount will be closer to 2.3mmt if consumption grows at only 2 per cent per annum.

Before 2008, when most wheat imported by Vietnam was for food, Australia supplied about 40–50 per cent of Vietnam's requirements in a normal year (when Australia was not affected by drought). If this is an indication of future demand, then in the short term, Australia may reasonably expect (in a normal year) to supply about 0.9mmt of wheat to Vietnam's higher priced food market, which will rise to about 1.3mmt by 2030.

This situation may change, and Australia may be able to supply a higher proportion of Vietnam's food wheat requirements if it can displace some North American wheat demand. Indeed, in 2009 and 2010, Australian wheat supplied almost all of Vietnam's food wheat requirements. The Vietnamese milling industry has a preference for higher quality Australian wheat, such as the APH class, when they can obtain it, for both baking bread and making noodles (see Figure 17 and Figure 18). North American wheats are less preferred than some classes of Australian wheat but, they are still more preferred than Black Sea wheat.

Table 5

Average value (US\$ per tonne) of wheat imported by Vietnam from Australia and selected regions. Note that the average value figures were imputed by dividing the gross value of wheat imported by the total tonnes

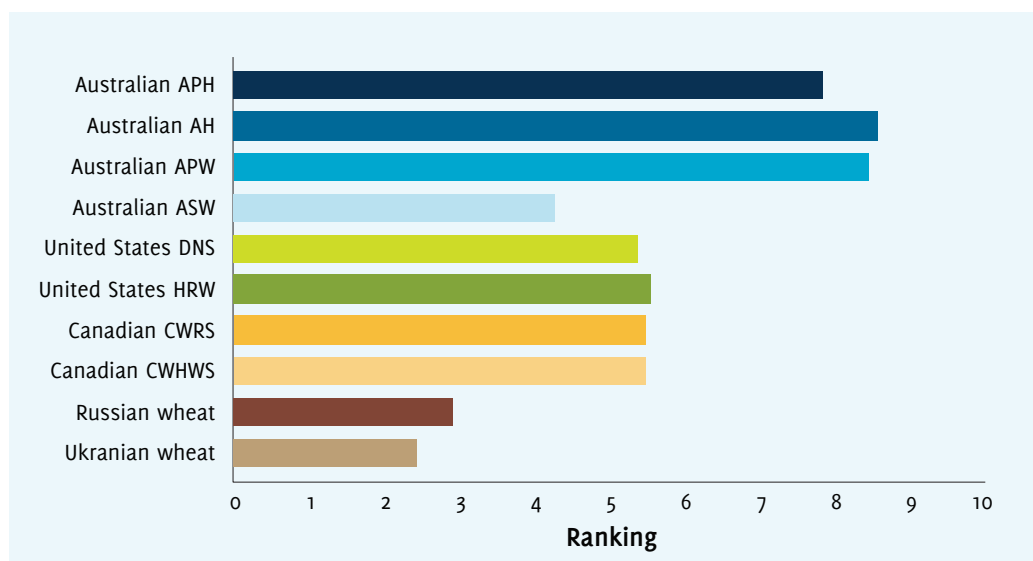
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Australia	264	444	264	271	334	307	351	317	276	236	233	272
North America	291	401	277	312	396	394	357	324	254	246	209	272
Black Sea		408	192	222		363	292	313	208	190	199	223
South America	237	498		233				240	234	191	190	207

Source: : MARD 2018



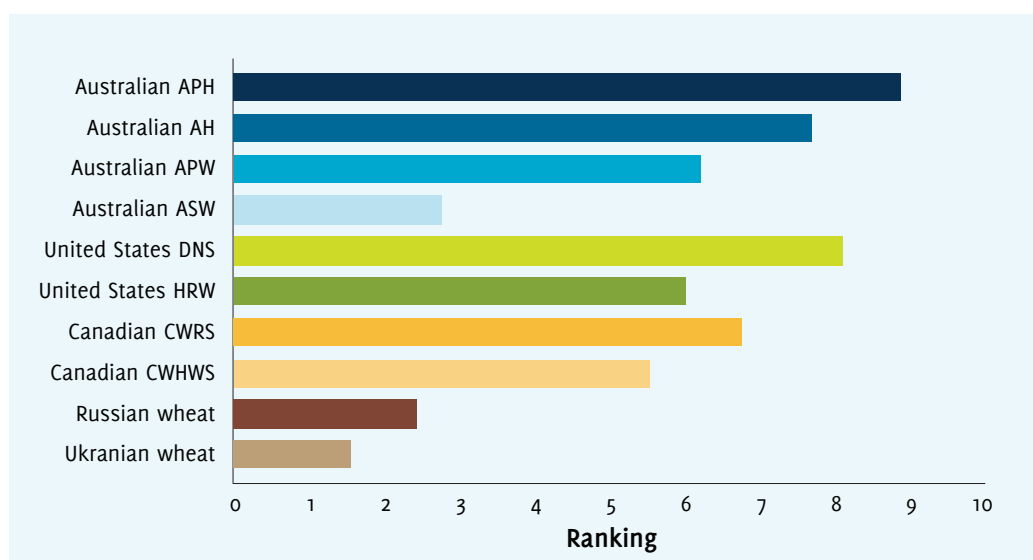
**Figure 17**  
Average ranking  
(0 – low to 10 – high)  
by Vietnam-based mill  
technicians and  
purchasers for  
imported wheat  
classes when  
processed for instant  
noodles

Source: AEGIC



**Figure 18**  
Average rankings  
(0 – low to 10 – high)  
by Vietnam-based mill  
technicians and  
purchasers for  
imported wheat  
classes when  
processed for  
Vietnamese banh mi  
(bread rolls)

Source: AEGIC



It is expected that greater quantities of other Australian wheat classes may also be supplied when it is competitively priced against Black Sea or South American origin wheat that is currently used in blending or other lower value uses, such as feed. Indeed, Australian wheat has some quality advantages that make it a preferred choice when prices are competitive for these purposes. For example, Black Sea or South American wheat imported into Vietnam often has higher moisture content and longer supply lines with multiple handlers compared to Australian wheat, leading to increased risk from higher mycotoxin levels and other storage problems.

It is also possible that the quantity of Australian wheat supplied to Vietnam may decline if it fails to meet the growing quality requirements of consumers. Indeed, in recent years, Vietnamese importers have expressed a strong preference for wheat sourced from some regions in Australia over others because of perceptions about declining wheat quality in some regions.

Recent feedback to AEGIC's researchers from Vietnam-based mill technicians and purchasers was that Australian wheat is currently not consistently meeting the textural firmness required for premium yellow alkaline noodles. In some cases, the texture attributes and targets for noodles in Vietnam do not appear to be fully understood by the Australian industry.

As incomes rise and consumption patterns change, the demand for higher quality noodle products and baked goods is likely to increase. The need for specific functional requirements in wheat to meet the changing requirements of consumers may partly explain the steady rise in the import of North American wheat into Vietnam since 2009. Understanding the changing trends in consumption of wheat-based food products in Vietnam and the implications this may have for the functional characteristics of Australian wheat will be important to support its demand in the Vietnamese market.





*Banh mi – a baguette-style bread roll commonly sold in Vietnam*

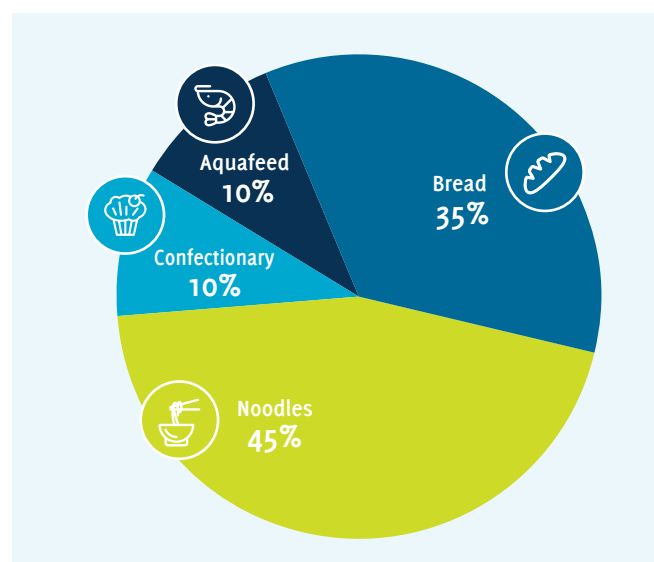
## Consumption trends in wheat-based foods

Wheat is an important staple food in Vietnam, being consumed mainly as bread, noodles and sweet biscuits (see Figure 19).

The wheat noodle segment is dominated by instant noodles (90–95 per cent). On a per capita basis, Vietnam is one of the highest consumers of instant noodles in the world with an average consumption rate of 53.5 servings per person in 2017 (World Instant Noodle Association 2018). Vietnam consumed substantially less than South Korea, which stands out as the highest consumer in the world with 73 servings per day. However, Vietnam consumed about the same as Indonesia, Japan and Thailand, which all consumed about 45–50 servings per person. Since 2013, total consumption of instant noodles in Vietnam has remained static at about 5 billion servings per year with some flour mills reporting to AEGIC that they expected total consumption to decrease by about 3.5 per cent over the medium term. In contrast, Euromonitor (2018) stated that both the volume and retail value of noodles and pasta will continue to grow in Vietnam over the next five years with an expected annual growth of more than 5 per cent.

Euromonitor (2018) estimated that most of the increase in value over the past two years was contributed by higher inflation and improved packaging resulting from growing consumer awareness of food safety and hygiene, and that this trend is set to continue. This tendency towards premiumisation, resulting from higher incomes, may also indicate a willingness of consumers to demand higher quality noodle products. Currently, however, premium noodle products are mostly imported from countries like Thailand, Japan and Korea and target the middle to high income market segments (Euromonitor 2018). Domestically produced noodle products mostly focus on the lower income mass market.

**Figure 19**  
**Main uses of wheat in Vietnam**  
Source: AEGIC



The fresh noodle segment in Vietnam is dominated by rice noodles, consumed most often as phở, a type of Vietnamese soup where meat and vegetables are typically added with noodles. Fresh noodles represent only about 5–10 per cent of the wheat noodle market and are consumed mainly in restaurants and as street food.

The bakery segment in Vietnam is dominated by banh mi, a Vietnamese-style baguette. Banh mi are often consumed as a midday meal, filled with meat and salad. As such, the banh mi has a less dense structure than a French baguette. Other baked goods using wheat flour include sandwich bread, sweet rolls, cakes and steamed buns.

It difficult to determine the relative expenditure on noodles and bread in Vietnam and how this compares with other Australian wheat markets because wheat-based foods constitute a low proportion of the household budget in Vietnam, and so individual items are rarely specified in consumption studies. Bakery outlets and stalls can easily be found across the country and banh mi is a common food, well known by most Vietnamese. The World Bank (2018b) in its global consumption database provides some information that allows a comparison of household expenditure on various cereal products between countries, although the standardisation of data makes it difficult to make comparisons with confidence.

Nevertheless, a general comparison between Vietnam and Indonesia suggests that household expenditure on bread is higher than on noodles in Vietnam, whereas in Indonesia the opposite is true, with a higher proportion of the household budget being spent on noodles than bread. In both countries, the importance of bread increases in urban areas compared with rural areas. The proportion of household expenditure devoted to bread for urban households was more than double that of rural households for both Vietnam and Indonesia, whereas for noodles it was only about 30 per cent higher.

In general, wheat-based foods are a relatively minor part of household expenditure in Vietnam. The Vietnam urban food consumption and expenditure study at the University of Adelaide (Umberger *et al.* 2018) showed that the average urban household spends only between 2 and 3 per cent of their budget on processed cereals, which included maize products as well as other grains, flour, pasta, noodles, bread and breakfast cereals. This was about one-third of household expenditure on rice. Interestingly, in this study, as incomes increased, the proportion of the household budget spent on processed cereals increased marginally and that on rice decreased — but only in Ho Chi Minh City. The effect of income on rice and processed cereal expenditure was not clear in Hanoi (see Table 6).

In contrast, Hoang and Meyers (2015), when modelling food demand in Vietnam to 2030, projected expenditure on rice will occupy a declining share of the household budget while high-value foods such as meat and drinks will occupy a higher proportion. They projected that rice consumption will decrease both on a per capita basis and in total while overall consumption other foods will increase. Both urbanisation and income growth have a strong effect on predicted consumption, with urbanisation having a stronger effect on rice than other food groups.



*Fresh noodles are mainly consumed in restaurants or as a street food*

Table 6

Percentage of monthly food expenditure for each adult male equivalent on different food types by income groups in Ho Chi Minh City and Hanoi, Vietnam

Foods	Low income	Low-middle income	Middle-high income	High income
Ho Chi Minh City				
Rice	6.6	6.5	6.0	5.6
Processed cereals	2.1	2.3	2.6	2.4
Pulse, nuts and beans	1.4	1.4	1.6	1.5
Oils and fats	1.1	1.7	1.6	1.5
Sugar, spices and sauces	4.3	4.5	4.2	3.9
Vegetables	14.0	14.1	13.4	13.3
Fruit	7.7	7.7	7.9	7.6
Meat and eggs	35.4	36.9	37.4	38.2
Milk and milk products	5.5	7.3	7.4	7.7
Beverages	9.3	7.1	7.6	7.3
Processed foods	7.4	7.9	7.7	7.2
Food consumed away from home	5.1	2.5	2.6	3.8
Hanoi				
Rice	7.1	6.7	5.9	7.4
Processed cereals	2.5	2.5	2.4	2.2
Pulse, nuts and beans	2.9	2.4	2.0	1.7
Oils and fats	1.8	1.6	1.5	1.5
Sugar, spices and sauces	2.8	2.5	2.2	1.9
Vegetables	12.5	10.8	9.8	9.0
Fruit	10.0	8.6	9.0	8.8
Meat and eggs	38.8	39.9	39.1	39.4
Milk and milk products	4.0	6.7	7.4	8.0
Beverages	6.1	5.4	7.1	7.4
Processed foods	7.2	7.1	7.2	7.2
Food consumed away from home	4.5	5.9	6.4	5.7

Source: Umberger *et al.* 2018



# Barley

## Beer consumption

The Vietnamese like their beer. With rapid growth in the production and consumption of beer over the past decade, Vietnam is fast becoming one of the largest beer markets in Asia. In 2007, Vietnam produced about 1.4 billion litres of beer (only about 20 per cent of that produced by Japan) and was ranked 25th among the top 25 beer-producing countries worldwide (see Table 7). By 2017, only 10 years later, Vietnam had risen 16 places up the global rankings, overtaking Thailand and South Korea to become the 9th top producer with more than 4.3 billion litres produced (83 per cent of that produced by Japan).

Production has increased to meet the rapid rise in beer consumption driven by rising incomes and an increase in the proportion of the population drinking. Between 2002 and 2016, the proportion of adults drinking in Vietnam rose from 46 to 77 per cent among men and from 2 to 11 per cent among women (WHO 2018). Per capita beer consumption in Vietnam has more than doubled since 2008, increasing from 21.4L to 43.5L in 2016, which puts consumption on par with the other major per capita beer consumers in Asia – Japan and South Korea. Given this rapid increase in beer consumption, how likely is it that beer consumption and production will continue to rise in Vietnam and how will this affect demand for malting barley?



*Per capita beer consumption in Vietnam has more than doubled over the past decade*

Table 7

Beer production ('000kL) for the top 25 beer-producing countries in 2007 and 2017

2007			2017			
Rank	Country	Production ('000kL)	Rank	Country	Production ('000kL)	% change since 2007
1	China	38,907	1	China	39,788	2.3
2	United States	23,288	2	United States	21,775	-6.5
3	Russia	11,469	3	Brazil	14,000	34.9
4	Mexico	10,559	4	Mexico	11,000	4.2
5	Germany	10,397	5	Germany	9,301	-10.5
6	Brazil	10,380	6	Russia	7,440	-35.1
7	Japan	6,309	7	Japan	5,248	-16.8
8	United Kingdom	5,132	8	United Kingdom	4,405	-14.2
9	Poland	3,550	9	Vietnam	4,375	209.4
10	Spain	3,435	10	Poland	4,050	14.1
11	Ukraine	3,156	11	Spain	3,720	8.3
12	Netherlands	2,726	12	South Africa	3,232	21.8
13	South Africa	2,653	13	Nigeria	2,600	92.6
14	Venezuela*	2,491	14	Netherlands	2,480	-9.0
15	Canada	2,392	15	India	2,250	150.0
16	Thailand	2,170	16	Thailand	2,234	2.9
17	Romania*	2,020	17	Canada	2,208	-7.7
18	Colombia	1,900	18	Colombia	2,189	15.2
19	Czech Republic	1,863	19	France	2,130	41.1
20	Belgium	1,857	20	Belgium	2,120	14.2
21	South Korea	1,789	21	South Korea	2,000	11.8
22	Australia*	1,736	22	Czech	1,910	2.5
23	France	1,510	23	Argentina	1,886	30.0
24	Argentina	1,450	24	Ukraine	1,780	-43.6
25	Vietnam	1,414	25	Philippines	1,780	30.9

\*Figures for Venezuela, Romania and Australia are for 2008

Source: Kirin 2018

Euromonitor (2018c) forecast a 5 per cent compound annual growth rate in the volume of beer consumption in Vietnam for the next five years. In addition, they projected that the growth in dollar value should be higher because of an ongoing trend towards premium beer products. The World Health Organization similarly projected an increase in alcohol consumption in Vietnam of 3L per capita by 2025 (WHO 2018). By contrast, Dezan Shira & Associates (2018) projected that per capita beer consumption in Vietnam will reach 52L by 2035, which is a compound annual growth rate of only about 1.5 per cent.

Continued growth in beer consumption at 3–5 per cent to 2030 will see Vietnam substantially pass other major Asian nations in beer consumption to reach about 70L per capita, similar to Australia's current consumption and about 70 per cent more than Japan and South Korea currently consume. Such a high rate of consumption, however, is reasonable, given that almost all alcohol consumed in Vietnam is as beer. WHO (2018) estimated the percentage of alcohol consumed as beer in Vietnam as 91 per cent compared to 40 per cent for Australia and about 20 per cent for Japan and Korea. Furthermore, most beer consumed in Vietnam has a relatively low alcohol content (2–4 per cent). Therefore, even with growth in beer consumption at the upper end of projections, total alcohol consumption in Vietnam would only be 3.5–4.5L<sup>1</sup> of alcohol per capita, which is 40–60 per cent lower than Japan, South Korea and neighbouring Thailand.

<sup>1</sup> It is likely the current estimates for per capita alcohol consumption for Vietnam of 8.3L developed by ESCAP (2018) and reported in the *Global Status Report on Alcohol and Health 2018* (WHO 2018) is substantially overestimated. We used estimates in the WHO Global Information System on Alcohol and Health, which estimates recorded alcohol per capita levels at 3.1L for Vietnam.

Mass advertising of beverages with an alcohol content above 15 per cent is prohibited within Vietnam, which is likely to favour the continuing emphasis on beer consumption as the preferred alcoholic beverage. A slight shift in consumer preference to alternative products, such as wine, is likely to occur as income levels rise; however, a significant shift is unlikely soon given that wine currently occupies less than 4 per cent of the market and average incomes are still relatively low in Vietnam.

A stronger ongoing trend as incomes rise is the demand for higher quality beers, which may mean an increasing production of full malt beers. The affordable premium segment has been the fastest growing in the past few years. By 2020, Dezan Shira & Associates (2018) estimate that 10 per cent of the market will be high-end beers, 62 per cent will be mid-range products and 28 per cent will be lower quality beers aimed at the low-cost market. The market will continue to evolve with greater representation of international brands, but with the beer produced in Vietnam. High transportation costs generally greatly limit the international trade of beer. Hence, multinational brewers gain access to a market and develop economies of scale by developing multi-plant operations within a country to produce and distribute their leading brands.

A continuing rise in the special consumption tax has put pressure on brewers' margins and is one factor that may dampen demand for beer if rates continue to rise. The special consumption tax on beer increased from 45 to 55 per cent in 2016 and has increased a further 5 per cent each year since. If this trend continues, it will be 70 per cent in 2019.

## Barley and malt imports

### Barley

Until 2017, Vietnam had limited malting capacity within the country and therefore had relied principally on malt imports to supply its brewing industry. In July 2017, Intermalt, an Interflour subsidiary partly owned by the Australian grain handling cooperative CBH, opened a new malting facility with a capacity to process 140,000mt of barley annually. Before this, the Duong Malt Company, established in 2002 with the capacity to process 50,000mt of barley, was the country's main malt manufacturer.

From 2002 to 2016, barley imports to Vietnam have fluctuated between 40,000 and 50,000mt, indicating that imported barley was principally going into the malt market to service the Duong Malt Company facility (see Figure 20). In 2010, when nearly 140,000t of barley were imported, it is likely that significant quantities of barley were also imported for feed. Interestingly, 2010 also marked the start of significant quantities of wheat being imported for feed into Vietnam (see Figure 15).

Between 2002 and 2016, Australia was consistently the main supplier of barley to Vietnam, although overall, the origin of supply of imported barley has fluctuated given the relatively small size of the market. In different years, Ukraine, Denmark and Argentina have all supplied significant quantities of barley to Vietnam. In the two years since the opening of the Intermalt plant, barley imports into Vietnam have increased by about 100,000mt to reach more than 150,000mt, with about 80 per cent of this being supplied by Australia. However, even at the level of 120,000mt, the total exports of barley from Australia to Vietnam represents less than 1 per cent of Australia's total barley exports and is still less than the total amount of malt Australia has exported to Vietnam.

**Figure 20**  
Total import of barley by Vietnam, 2002–18 (left axis) and the proportion of total imports originating from Australia (right axis)

Source: UN Comtrade (2018); ABS (2018); USDA (2018a)

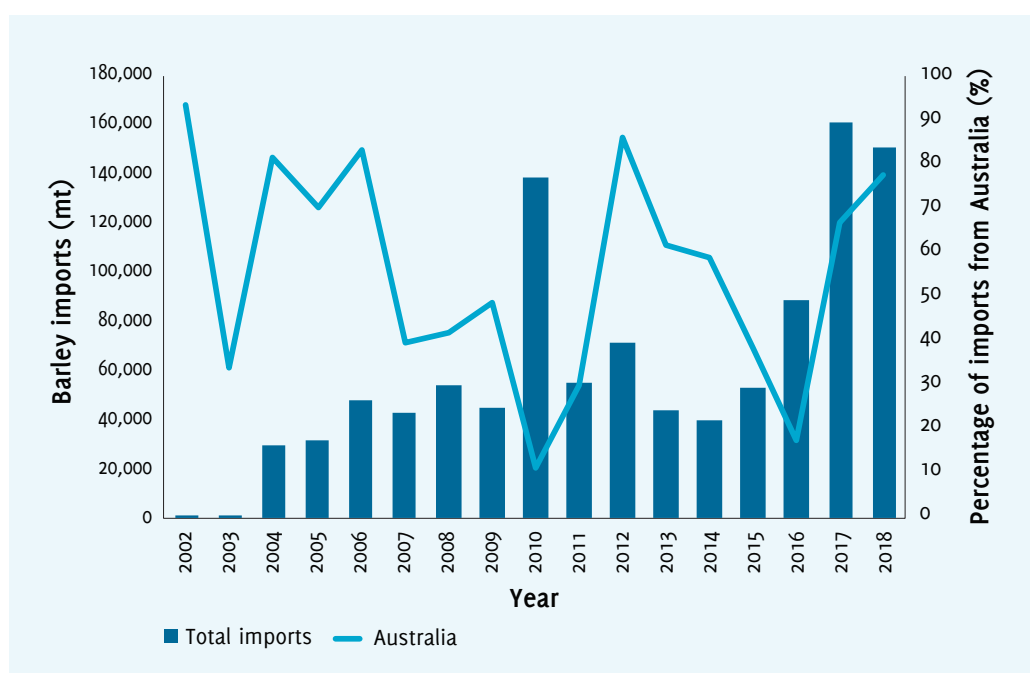
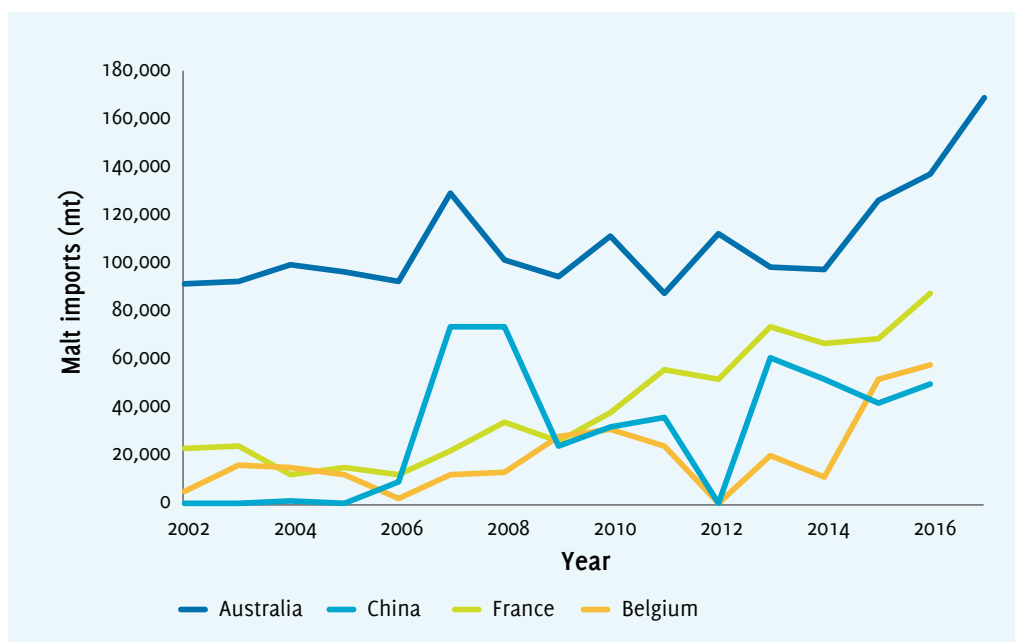




Figure 21  
Malt imports by Vietnam  
from selected main origins,  
2002–17. Note that only  
data for Australia is  
presented in 2017

Source: UN Comtrade (2018)  
database; ABS (2018)



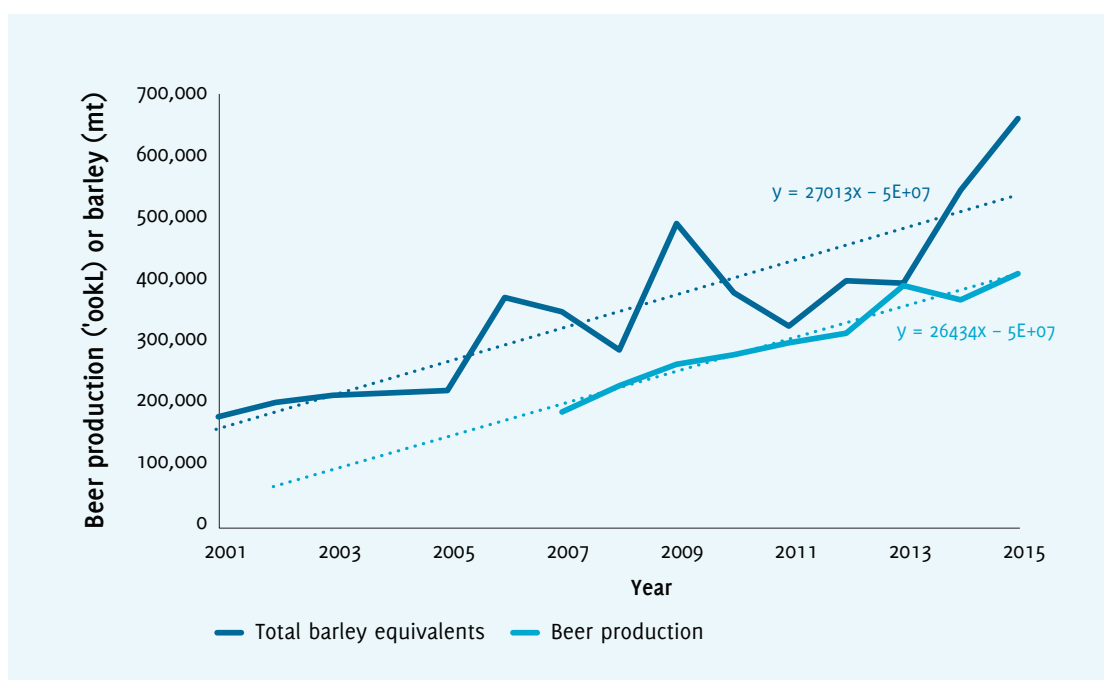
The further use of barley in animal feed rations in Vietnam and other South East Asian countries is a vexed question. Barley is used effectively in feed rations in North America, Europe, Australia and China and presumably therefore could to be used effectively in Vietnam. Chinese feed manufacturers understand 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. Given the continued expansion of the feed industry in Vietnam, new demand for Australian barley may be created if feed manufactures can become more familiar with its use.

## Malt

Total malt exports from Australian to Vietnam remained steady at about 100,000–110,000mt from 2002 to 2014, despite the increasing demand for malt to satisfy increased beer production (see Figure 21). Malt imports from other suppliers (particularly France) had increased, so the Australian market share halved from about 60 to 30 per cent over this period. Since 2015, there has been an upswing in malt export, so that in 2017 more than 450,000mt of malt was imported with about 170,000t of this imported from Australia.

As highlighted above, beer production in Vietnam is likely to continue to expand given the strong likelihood of continued growth in beer consumption. Import of barley plus malt has tracked increases in beer consumption reasonably closely over the period where data is available (see Figure 22), so that





**Figure 22**  
**Relationship between the volume of beer production and barley grain equivalents imported by Vietnam, 2001–15.**  
**Note that barley grain equivalents are calculated by multiplying total malt imports by 1.267 and adding this to total barley imports**

Source: UN Comtrade (2018); Kirin 2018

imported barley equivalents (calculated by multiplying total malt imports by 1.267 and adding this to total barley imports) has increased at a similar rate to beer production. Assuming this relationship holds and beer production will increase by a modest 3 per cent per annum (compound annual growth rate) to 2030, the total barley equivalent imports by Vietnam will be about 850,000mt by 2030. This will increase to 960,000mt if beer production grows at 4 per cent, or reduce to 745,000mt if growth slows to 2 per cent.

A doubling of Inter malt's malting capacity to 280,000mt barley throughput over this period, which has been suggested by industry reports, would see total barley imports increase to about 330,000mt leaving the total malt import requirement at about 330,000–490,000mt by 2030, similar to the current requirement.



*Beer production in Vietnam is likely to continue to expand*



# Implications for Australia

1

Australia needs to carefully monitor and respond to the changing needs of Vietnamese flour mills, food manufactures and consumers to ensure its wheat remains a preferred choice for both noodle and bread manufacturing.

The Australian wheat classes Australian Prime Hard (APH) and Australian Hard (AH) are strongly preferred over wheat from other countries for noodle manufacturing, providing superior noodle colour and colour stability. Similarly, APH and AH are preferred over wheat from most other countries for bread in Vietnam, one of the few countries where Australian wheat is highly valued for bread production. However, while Australian wheat is well regarded in Vietnam, in recent years, variation in functionality (gluten content and quality) for end products is negatively impacting users' opinion of Australian wheat quality. Similarly, feedback from the Australian Export Grains Innovation Centre's (AEGIC) studies in Vietnam suggests that Australian wheat does not consistently meet the textural firmness required for premium yellow alkaline noodles and that texture attributes and targets for South East Asian noodles appear to be poorly understood by the Australian industry.

Vietnam is an important and dynamic market for Australian wheat. It has the third largest population in South East Asia and continues to grow but its growth is slowing and its population is ageing. Its per capita incomes are improving, which will eventually affect dietary preferences. But unlike many of its contemporary South East Asian neighbours, which have developed ahead of Vietnam, the country faces a low level of

urbanisation combined with a rapidly growing economy, in a world that is now more heavily connected regionally and globally. This is a unique combination of factors that will drive changes in consumption patterns and levels over the next decade. Already clear, given the low fertility rate and rising incomes in Vietnam, is that its future demand for grain will be driven less by population increase and more by income growth than has occurred in the past. These changes will inexorably lead to improved quality being the main source of market share expansion in the longer term.

A range of opportunities for Australian cereals will start to become apparent over the next 10 years with the emerging middle class making up one-quarter of the population by 2030. This segment of the population will demand a greater range of food and beverages with higher quality. New consumption preferences such as whole wheat breads, premium noodles and full malt beer will become manifest within this group and will help set the future trends for consumption that eventually move to the broader population as the economy grows. The University of Adelaide's ongoing project on urban food consumption and expenditure in Vietnam provides an example of where monitoring dietary trends can facilitate a response from the Australian grains industry.



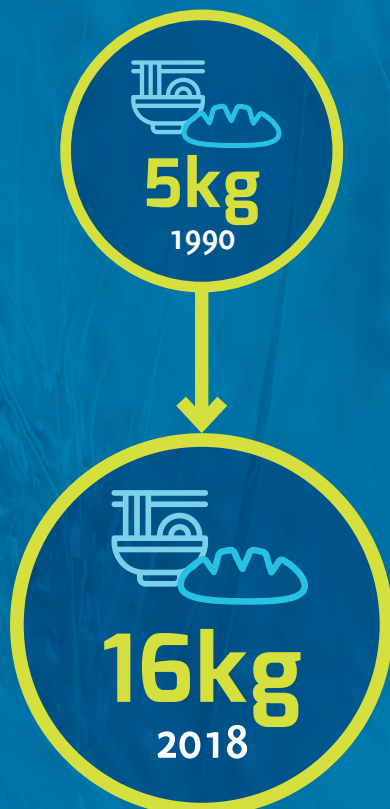


2

Convenience and affordability will remain important factors driving consumption patterns in Vietnam for the foreseeable future and so Australian wheat for human consumption will need to be attractively priced despite its preferred status in the market.

From 1990 to 2018, the compound annual growth rate in per capita wheat consumption for food in Vietnam averaged about 5.6 per cent a year, rising from about 5kg per capita in 1990 to over 16kg per capita in 2018. However, this level of wheat use for food consumption is still low compared to other Asian countries so there remains substantial opportunity for further growth in wheat consumption in Vietnam. This poses a market opportunity for Australia. Wheat consumption for food is expected to grow at about 3 per cent per annum to 2030 and Australia is well positioned to benefit from this growth.

Wheat use overall in Vietnam has increased rapidly from below 1mmt in 2000 to 4.5mmt in 2018 with much of the marked growth coming from greater imports of feed wheat. Australia initially participated in this expansion by supplying wheat for both feed and food uses but in recent years cheaper wheat from the Black Sea and South America has replaced Australian wheat in the feed sector. Future opportunities for Australian wheat in most years are therefore likely to be in the food sector where it is preferred for both noodle and bread manufacturing. Nevertheless, for most Vietnamese people over the next decade income growth will be off a low base and occurring as more people move to urban areas. Therefore, time pressures will build as demographics change and household budgets remain constrained.



Annual growth rate in per capita wheat consumption for food in Vietnam











3

The feed market in Vietnam has expanded rapidly over the past 10 years but feed barley is not yet used. Providing technical assistance to Vietnamese feed users that builds awareness of the advantages of feed barley and other Australian feed grains may stimulate demand.

The feed sector continues to expand rapidly in Vietnam, providing opportunities for a range of Australian feed grains. Wheat has been the only grain from Australia to consistently supply this market. However, opportunities for other grains exported from Australia also may exist, particularly as the feed formulation industry continues to industrialise. Australian barley and canola meal are proven and reliable feed sources that can be used in the Vietnamese feed industry. Neighbouring China imports significant quantities of Australian feed barley each year and shares some similarities with Vietnam (although there are also many differences). A closer examination of the feed industries in both countries may reveal pathways for entry of Australian feed barley to Vietnam.

Other grains, particularly lupins, may have functional advantages in aquafeeds that provide opportunities for further development. While these grains are likely to have only niche uses, particularly initially, building awareness of their benefits and supporting their use in the Vietnam aquafeed industry may allow Australian farmers to participate to a greater degree in this expanding market.



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## Perth

3 Baron-Hay Court  
South Perth  
Western Australia 6151

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

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