

Think big, think fresh

**A fresh food precinct at the heart
of Western Sydney**

A new initiative to create 12,000 jobs
and a world-leading food hub

November 2017

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Full digital supply chain and on-line ordering

High-tech packaging: pack and label to end user specification

A vision of a fresh food precinct for Western Sydney to deliver 12,000 new jobs

High-tech farming and processing systems

End-to-end cold chain compliance

Meals packed, air freighted and delivered within 36 hours of order

Executive summary

A seamless and world-leading Fresh Food Precinct (FFP) in close proximity to Western Sydney Airport (WSA) has the potential to create 12,000 jobs and provide local residents access to fresh fruit, vegetables and meat products sourced from within the Sydney Basin and the airport precinct.

With millions of consumers on Australia's northern doorstep increasingly demanding reliable, high-quality and ethically-sourced produce from Australia, there is also vast opportunity for this highly-productive agricultural land to provide the food and fibre necessary for international consumption.

Western Sydney is one of the fastest growing urban populations in Australia. Home to more than two million people, and projected to reach three million by 2036, it accounts for two thirds of the population of Sydney. A fresh food precinct in the heart of this growth area will provide access to locally sourced fresh produce, grown by local residents in a high-value, intensive production precinct.

The WSA is a once-in-a-generation opportunity to develop a custom built export facility for fresh food and fibre. Importantly, it will sit alongside a passenger terminal which services millions of international passengers travelling every year.

KPMG and NSW Farmers have conducted an analysis of the potential for the development of a world-leading FFP as part of a future WSA. Our research has found that growing demand for fresh Australian food highlights an exciting future for the sector, including the production and processing of food for Australian retail, and for direct export to international markets via air freight.

For example, it is feasible that a consumer from China, Southeast Asia, India, or even the United Kingdom, could order a meal freshly prepared in

Australia via their mobile phone, for delivery to their home within 36 hours.

Western Sydney is well placed to support a FFP due to its food production capabilities and skills. It is estimated that up to 12,000 jobs could be created in a range of sustainable roles, such as in cutting edge food technology and logistics.

Via the FFP, Australian farmers and food processors could expand production for both domestic and new markets. The precinct could include high tech food production, and will be underpinned by new technologies such as the Internet of Things (IoT), blockchain and robotics. Australia's food safety and quality systems will be further enhanced in these new food production systems.

A FFP will be underpinned by inter-Governmental agreements allowing the fast and efficient (borderless) approval of products. Standards applied and recorded in the FFP will pre-approved by the export market destinations.

Fresh food export is a fast growing international market however Australia's potential to leverage this demand is limited due to the current unplanned approach to freight and its reliance on passenger planes for freight shipments.

WSA has the exciting potential to incorporate air freight of food in a considered manner, creating jobs and supplying fresh food to consumers in key markets such as China and Southeast Asia.

Recommendations

There is a strong argument for land of up to 500 hectares to be zoned as an FFP in close proximity to WSA – embracing the best of food production, processing, food assurance and logistics technology. In addition, the report recommends \$5 million for a further feasibility study to prepare an investor-ready prospectus on a fresh food precinct at WSA to go to market.

An implementation plan will establish the enablers of the precinct such as utilities, connectivity and logistics. Leadership in master planning and co-ordination from the Commonwealth, State and Local Governments can provide a base case for strong investment demand from commercial parties that is likely to underpin the precinct.

What is the proposed FFP?

The FFP would be an area of land¹ of up to 500 hectares in close proximity to the proposed WSA that is carefully designed to integrate high value food production with the best in food processing technology. The FFP will also integrate with other regional farming and food processing assets. The FFP zone will comply with the necessary regulations of key export market destinations so that food processed in the FFP can be quickly cleared for export via air freight with digital certification.



¹ This area includes the Western Sydney Airport – Badgerys Creek Aerotropolis and Western Sydney Priority Growth Area – see *Draft Greater Sydney Region Plan* https://gsc-public-1.s3.amazonaws.com/s3fs-public/gsrp_oct_2017.pdf at page 47 for details

Case study

The Dutch way for sustainable agriculture

'Twice as much food, half as many resources'

Dealing with scarcity is something the Dutch are well accustomed to, and their agribusiness sector has developed over centuries to be the leading example of good practice. The Dutch Agribusiness and Food sector contributes 6.6 percent of global food exports. That output is made all the more remarkable considering the size and relatively small population of the country.

In comparison, The Netherlands is approximately one tenth the size of NSW, or roughly the size of the Sydney Basin, with 41,543 square km and a population of approximately 17 million (six million fewer than Australia), which equates to approximately 500 inhabitants per square km.

It is also bereft of almost every resource thought to be necessary for large-scale agriculture. Yet it is the globe's number two exporter of food as measured by value, second only to the United States, which has 270 times its landmass. So how on Earth have the Dutch done it?

Considering the constraints of limited land, expensive labour, production in high density urban environments and a high social awareness of sustainable practices, this is an example where innovation thrives when constraint is high.

Almost two decades ago, the Dutch made a national commitment to sustainable agriculture under the rallying cry, 'Twice as much food using half as many resources.'

In the relatively short period of time, this has led to an innovative and a highly productive sector with a big focus on sustainability.

Since then farmers have reduced dependence on water for key crops by as much as 90 percent. They've almost completely eliminated the use of chemical pesticides on plants in greenhouses, and since 2009 Dutch poultry and livestock producers have cut their use of antibiotics by as much as 60 percent.

Fresh fruits and vegetables are now shipped around the clock. Aside from growing their own produce, they import food from other countries. Food products are shipped in bulk to the Dutch port of Rotterdam, processed and packaged for consumers, and then moved to markets by air, rail, and sea. This is agribusiness.

The Dutch show that when farmers, businesses, government, scientists and the community work collaboratively to develop technological and social innovation to produce good, healthy and safe food that is produced sustainably, the country and the world will benefit.

Aside from food, food knowledge is now also a key export product. They actively disseminate their knowledge across the world to contribute to the sustainability of the global food ecosystem.

(Main content source: NG 2017)

New South Wales



Netherlands



41,543 sq km

x 3 population
(17 million)

500 inhabitants per square km

1/10th size of NSW

2 <https://www.nationalgeographic.com/magazine/2017/09/holland-agriculture-sustainable-farming/>



Blockchain - providing food security and provenance

Blockchain is a public ledger available to all parties within a supply chain including producers, retailers, logistics providers, and regulators. It provides a comprehensive record of each asset, all transaction history, and its current ownership. Blockchain provides a platform for food assurance, serving as a repository for data that demonstrates where, how and when food was produced, processed and distributed, thereby improving traceability and transparency of food.

IoT - enabling Advanced Transport Management and food processing

IoT is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a narrow band communication network. It can support all types of transport management and food processing, ensuring food is always stored and managed in healthy and safe conditions, enabling advanced food growing methods.

A new business model for food production

Some clear trends are impacting food production, featuring changes that will redefine the sector in the next 10 years.

Food production is becoming more customer focused. The days of a farmer producing a food or fibre product and then hoping there is a market or customer to buy it are fading. This will be replaced by much stronger connectivity between primary production and consumer needs, and will involve longer-term agreements with farmers and more vertical integration from food companies, which will invest across the food chain.

The world's emerging markets – China, Southeast Asia, the Middle East and Africa – provide sustainable consumption that underpins food production investment. Offtake agreements into these markets can provide confidence to invest in long term production assets. Investor interest remains strong, particularly in Australian meat, dairy, horticulture, seafood and higher value crops such as pulses.

Investments in the food supply chain will be underpinned by new technologies in plant breeding, indoor farming, energy and water management, food safety and quality, digital and the IoT.

New investments will link into distribution models including air freight of fresh food. Fresh seafood and some fruit and vegetables are already air-freighted to export markets (e.g. from Wellcamp Airport in Toowoomba to Hong Kong). There are now nine commercial airlines operating between China and Australia conducting approximately 100 flights per week. This is set to increase with Chinese tourist numbers forecast to triple from one million to 3.3 million per annum by 2026 (Australia China Business Council).

Food assurance (quality, safety, environment, people and animal welfare) will be a competitive advantage for Australia compared to many countries. Emerging business models will provide an even better basis for delivering food assurance in real time.

New farm business models will reduce the risk of climate and market volatility, which is necessary to attract investment and to increase returns. Australia has the potential for highly efficient cross-border zones based on digital platforms (such as blockchain) that will enable fast and efficient trade of food and fibre. For this to be achieved, we must eradicate inconsistencies of food product standards between Australia and destination markets.

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Global demand for food will remain strong, with Australia well placed to provide high quality food

The planet must produce “more food in the next four decades than all farmers in history have harvested over the past 8,000 years”.³ That is because by 2050, the Earth will be home to as many as 10 billion people, up from today’s 7.5 billion.⁴

We don’t have to expand farming’s footprint in order to grow more – getting smarter about what and how we grow our food and fibre, as well as lifting yields, will improve farmers’ bottom line, reduce waste and lift our ability to provide enhanced food security for our exports.

The OECD reported that: “For agriculture and aquaculture to respond to future challenges, innovation will not only need to improve the efficiency with which inputs are turned into outputs, but also conserve scarce natural resources and reduce waste.”⁵

Most of the population growth is likely to come from developing markets, with Africa expected to double its population by 2050. The demand for food export will put pressure on developed food economies to supply the global market.

Whilst population growth is driving increased demand, the rising middle class in developing economies are dramatically changing consumption patterns and preferences. This is leading to a significant increase and demand for high quality and premium fresh produce. The global organic food and beverage market is expected to continue to grow at an estimated compound annual growth of 16.7 percent to 2020.⁶

‘Brand Australia’ is well regarded in these markets, with a 2016 survey⁷ of high value Chinese consumers rating Australia 2nd out of 20 countries with regards to the quality of agriculture products used in food production. The FFP would be a key asset in driving ‘Brand Australia’.

Independent studies for the Commonwealth and NSW Governments indicate that food and agriculture production are key opportunities for Australia, and specifically Sydney, to deliver export growth along with the jobs and the businesses that will support it.

The Australian agribusiness sector is expected to grow by 17.3 percent in 2017, to reach a record \$62.8 billion⁸ – much due to export demand. The National Farmers’ Federation has a target of Australian agriculture being worth \$100 billion by 2030⁹ – a trajectory which will be strengthened as new markets are opened to export for Australian produce. This does not include the provision for the proposed fresh food precinct, which will further strengthen this position.

Compared to many other countries, Australia’s key advantages lie in its large area of arable land, relatively low land use conflicts (with urban and industrial expansion), its high biosecurity status, relative ease of doing business, technological readiness, high education levels,

an innovative culture, and its close proximity to emerging export markets. Trade barriers (such as the removal of tariffs under free trade agreements) are also contributing further to Australia’s competitiveness – Australia has been a champion of trade liberalisation over many years.

However, we note that according to KPMG’s 2016 Access Asia report, many Australian exporters are not maximising opportunities of current free trade agreements.¹⁰

Furthermore, the industry needs support in terms of food production innovation, value chain enhancement, government regulation and planning to take full advantage of these exciting growth opportunities.

Agriculture supply chains in Australia are often characterised by transport distances of over 1000 km between production, processing and markets, with transport costs accounting for up to 40 percent of the market price. A single point of transit makes domestic logistics easier to forecast and map, with fewer touch points in the supply chain.

As well as geographic challenges, Australia’s key disadvantages are its regulatory burden, rainfall, water availability and reliability, low soil fertility, aged workforce and high labour costs.



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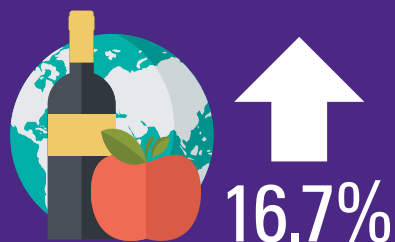
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3 <https://www.nationalgeographic.com/magazine/2017/09/holland-agriculture-sustainable-farming/>

4 <http://un.org>

5 OECD, 2011; Troell et al., 2014

6 <https://www.researchandmarkets.com/reports/3446694/global-organic-food-and-beverage-market-analysis>

7 Data Driven Marketing Asia - Australian Food and the Chinese Consumer (2016)

8 Canstar Agriculture Industry Outlook for 2017-2018

9 <http://www.nff.org.au/get/submissions/5550.pdf>

10 <https://home.kpmg.com/au/en/home/insights/2016/10/access-asia-free-trade-agreements-australian-trade.html>

An exciting opportunity for a FFP at Western Sydney

An FFP located in close proximity to the WSA would need to be capable of delivering fresh produce and pre-prepared food anywhere in the world within 36 hours from production to consumption – if it is to access premium food markets and the consumers that are willing to pay for the value of these products.

Production systems, logistics, processing, packaging and delivery to point of consumption needs to be fast, personal and precise to minimise waste, optimise the consumer experience and drive profitable food production systems. A single point for biosecurity and quarantine processing will ensure quality standards, help maintain 'Brand Australia' and assist in enhancing export protocols with key markets.

Today, consumers are in cities – often super-cities of over 10 million people – and access to convenient, safe, ethical and affordable food is not guaranteed. Delivering ready-to-consume food in tamper-proof packaging with a verifiable supply provenance will be a key differentiator in these markets.

Competitor nations are already streamlining regulation, infrastructure, production systems and freight services to move more produce faster. This enables a higher volume of produce to be delivered to point of consumption while reducing storage, handling, labelling and waste costs along the supply chain. Increased efficiency in export processing will reduce costs for the farmer,

improving margins and maximising Australia's competitiveness in certain export markets.

Potential exists for pre-certification of produce by Customs, expediting the export process and allowing produce to reach international consumers when it is fresher.

Coordinated transportation of Australian goods will make in-country distribution simpler to operationalise – leveraging the full benefits of platforms such as Alibaba and Yiguo, as per the NSW Farmers' Direct Beef Export project.

Food provenance

Knowing where, how and by whom an individual food item was grown, transported and processed from point of production to point of consumption.

A new home for the Sydney Markets?

Trading fresh fruit and vegetables has been a hallmark of the horticulture industry in the Sydney basin since pre-European times. Today, horticultural produce is traded at centralised market facilities at Homebush.

The FFP in close proximity to the WSA presents an opportunity for Sydney Markets to establish itself air-side, opening up new trading opportunities with international markets.

An international trader bidding for fresh produce on the market floor could, if a market were co-located, move the produce swiftly from there to the cargo hold of a plane as fast as traditional traders can by moving goods from the market to a shop floor.

Importantly, a market in close proximity to the WSA can help address the issue of 'food deserts' in Western Sydney, enabling local residents can have access to affordable, high-quality and locally-sourced produce, helping to improve the health of the local community, as well as create local jobs.

An FFP will create an estimated 12,000 jobs

Greater Western Sydney (GWS) has the largest food industry in Australia and many of the country's largest food and beverage wholesalers and retailers are located there. It offers an ideal location for leveraging off the primary produce from regional NSW, making it ideally suited as a fresh food precinct.

In FY16 the gross value of agriculture production in the region was \$806 million. The top three food products by value were; poultry at \$317 million, eggs at \$95 million and mushrooms \$74 million.¹¹

GWS is currently well connected to major growing regions in Australia, evidenced by all major retailers having their NSW fresh distribution centres located in the region.

It is understood that as part of the development of the WSA a number of upgrades to transport corridors will be made, increasing the access to regional areas including but not limited to:

- a new east-west motorway (M12) to the airport between the M7 Motorway and The Northern Road (A9)
- upgrading of The Northern Road (A9) to a minimum of four lanes from Narellan to the M4 Western Motorway
- upgrading of Bringelly Road to a minimum of four lanes between The Northern Road and Camden Valley Way
- proposed upgrades to rail infrastructure including a high-speed rail to move passengers quickly to and from the airport.

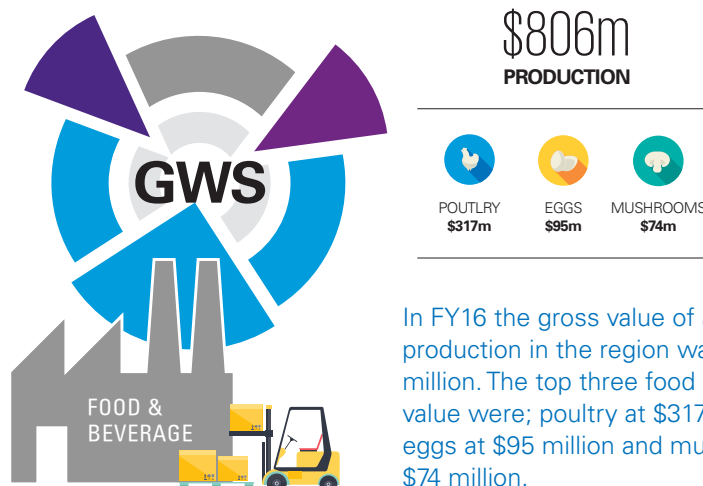
The State's investment in the new Agricultural High School and the Western Sydney University's greenhouse research and the Centre of Excellence in Translational Photosynthesis demonstrates a commitment to expand the agricultural focus in the region. This dovetails with the proposed food precinct with jobs for students and a live laboratory at the doorstep for research and training.

The FFP is forecast to generate an additional 12,000 jobs in a diverse range of areas spanning high tech innovation through to manual handling and processing. Some of the key job growth areas include high-tech food innovation; high-tech agricultural innovation; sales and marketing; logistics and food processing.

The FFP will not only enable the Australian food and agriculture industry to capture the growing international demand for Australian produce, but it will also build on the region's existing strengths in food production and agriculture.

The addition of a 5-square-kilometre area of protected cropping on adjacent land could add an additional 8,000 jobs to the region, not including job creation in the local supply industries.

¹¹ <http://www.agriculture.gov.au/abares/research-topics/aboutmyregion/nsw-sydney>



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Methodology

The jobs creation potential of the FFP in close proximity to the WSA utilises modelling and projections from the Deloitte Access Economics report, *Economic impacts of a Western Sydney Airport* (2015)¹², provided by NSW Farmers. Based on the report, NSW Farmers estimates that 12,000 additional jobs will be created as a result of the establishment of a FFP, once the WSA is fully operational. The following assumptions have been used to arrive at this figure:

- NSW Farmers have adopted Deloitte Access Economics assumptions around the job creation potential of additional freight movements.
- NSW Farmers have estimated the additional freight created by the FFP by referencing the experience of Australian and international airports with significant agricultural freight capabilities, and scaled these experiences to align with estimates and projections of route capacity for the WSA.
- NSW Farmers have further assumed that the proportion of total freight that will be food and agricultural freight will increase in the order of 10 to 15 percent as a result of dedicated facilities created by the FFP.

Advanced Transport Management

Advanced Transport Management is a system that involves both human operated and automatic ground vehicles that are capable of sensing their environment and navigating independently. Manned vehicles would enter the autonomous zone, after which the transport management system would take control and coordinate all traffic movements in the precinct. This will reduce traffic congestion and delays in the loading and unloading of freight.

A highly efficient transport network will mean that goods will be safer and spend less time in the production environment. Transport may eventually operate without human input 24/7.

Successful commercial implementation will also require express last mile logistic in export market destinations as well as reliable partners in market with dedicated capability.

Logistics supported by technology

A 21st century food production ecosystem will be supported by the technologies that are now under development.

The precinct will require ubiquitous connectivity for industrial grade IoT, video monitoring and autonomous vehicle management across the airport and surrounding precinct, with direct links to autonomous vehicle road trains on major highways as logistics feeders to the site (M6/M7/M1/M9 in future/Great Western Highway M4).

It will need central control for application of Artificial Intelligence (AI) to ensure just-in-time delivery of every aspect – products, packaging, transport vehicle (plane/truck/container/pallet/package) and labour. Speed and optimisation of land use per square metre per minute (potentially even charged to the user) must be the focus.



¹² <https://www2.deloitte.com/au/en/pages/economics/articles/economic-impact-western-sydney-airport.html>

The role of Government in planning for an investor-ready precinct

Government leadership is essential to attract the large scale, long-term investment into infrastructure, connectivity, jobs and businesses that create a food and agribusiness precinct capable of delivering globally at scale.

Government should allow approximately \$5 million for a full feasibility study and a go-to-market investment strategy into a 500 hectare food and agribusiness precinct to be funded through the finalisation of the NSW-Federal Government Western Sydney Cities Deal. It should have a view to full cost recovery from the subsequent precinct development and operation.

Food and agriculture can utilise the maximum building envelope allowable from areas zoned for high rise use through to flood plain or height restricted land use.

Key for government will be announcing an investor-ready approved precinct, and conducting a go-to-market strategy that attracts global scale operators as tier one suppliers – but also ensures that the tier two and three suppliers are able to operate either in close proximity or through coordinated logistics into the precinct.

Government should consider planning four levels of the precinct – land and infrastructure inside the airport boundary, land adjacent to the WSA precinct, land located across the Sydney Basin, and regional centres within 6 hour's road transport of WSA.

Centralised master planning will be essential to enable an integrated 24x7 production and logistics ecosystem that optimises productivity across both highest value land assets and land best utilised for field-based agriculture.

All levels are essential to successful food production and delivery into the global supply chain, with an emphasis on creating a provenance-transparent food brand that can deliver fresh produce from point of production to point of consumption anywhere in the world

in 72 hours. We must ensure that 'Brand Australia' represents the freshest and best produce from the farm to the plate in an emerging market as quickly as possible.

Communications infrastructure capable of utilising real time data will need to be available across the whole agribusiness ecosystem. This includes: licenced broadband, narrow band and IoT applications that enable Industry 4.0 IoT and AI, autonomous vehicles, identity monitoring, autonomous storage, integrated environmental monitoring and other emerging technologies critical to optimal growing, processing and transporting fresh food produce on a global scale.

Government can show leadership by ensuring that all legislation and regulation necessary for the food and agribusiness industries to operate optimally are pre-approved as part of the go-to-market strategy.

Key areas should include: planning; biosecurity; border security; food quality assurance; 24 hour operations including on farm, in production zones, and along all transport routes; environmental compliance; utilities access including water, power and digital; transport routes for road trains and autonomous heavy vehicles; 24x7 unlimited air movements.

Highly skilled labour will be required with use of government visas to attract qualified workers and courses at every level to train a new workforce in areas as diverse as digital analytics, AI, robotics, digital marketplace platforms, logistics, genetics, biosciences and food science, and the maintenance of the sophisticated infrastructure essential to a modern, high volume, high quality food and agribusiness precinct that is internationally competitive.

Conclusion

The growth in volume and value of global food production is an undeniable mega-trend. Australia and indeed GWS are well placed to play a key role in the supply of high quality, value-added fresh food to both local and international consumers.

The WSA project provides a unique opportunity to plan a FFP where food can be grown, received, processed and shipped – via processes that meet the requirement of export destinations.

Three levels of Government have the opportunity to provide the co-ordination and leadership needed to develop a master plan for this exciting food project. A compelling master plan will form the basis for attracting commercial investment, and consequently the creation of jobs in the Western Sydney region.





Acknowledgement & Thank you

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