



Agriculture Industry Snapshot for Planning Greater Sydney Region

August 2020

The value of agricultural production in Greater Sydney is approximately \$645m (ABS 2015/16) and the value of agriculture averages over \$15,000/ha, compared to \$245/ha for the rest of NSW. This shows how important Greater Sydney is for the State's agriculture industry. However, the expansion of Sydney's residential areas has incrementally pushed farming out of some areas and makes it difficult for remaining producers to operate. Farmers and value-adding industries in Greater Sydney have to deal with increased land use conflict, inflated land prices plus additional, lengthy and costly planning requirements due to competing interests and competing urban land uses.

Purpose of this profile

To develop effective land use planning policy for agricultural industries it is important to understand their location, the reasons why they exist in that location, the opportunities they take advantage of and the challenges they face. This profile details the key agricultural industries in Greater Sydney and their interactions with suppliers, processing facilities and markets. Identifying the significance of agriculture allows its recognition and management in land use planning by councils and other planning authorities. By providing the evidence base for strategic planning, agricultural land and local agriculturally based economies will be protected and supported in planning instruments.

It is important for Greater Sydney to retain agricultural production in a local setting. The benefits for both farmers and the urban population are evident through reduced food miles and provenance, and also amenity, research and tourism opportunities.

Land use planning is managed by the Greater Sydney Commission (GSC) and local councils, both now giving clear messaging about the need to protect and capitalise on the region's agricultural industries and rural land. Further to this, the Western Sydney Airport and Western Sydney Aerotropolis is in Penrith and Liverpool Local Government Areas (LGAs) and will be transformative for local agricultural and value adding opportunities.

Agriculture in Greater Sydney

Greater Sydney LGAs with agriculture include The Hills Shire, Hawkesbury, Penrith, Hornsby, Blacktown, Blue Mountains, Fairfield, Liverpool, Campbelltown, Camden and Wollondilly councils. Of these, Hawkesbury, Penrith, Wollondilly, Liverpool, Camden, The Hills and Blacktown are the most agriculturally productive. The entire region covers 33 LGAs in a total area of nearly 12,000 km² or around 2% of NSW, and is home to approximately five million people.

Although the most populated region, Greater Sydney is a significant contributor to agricultural production in NSW. The following table shows the Gross Value of Production (GVP) and percentage share of agricultural output for Greater Sydney of each of the top five economic industries. These top five industries alone account for 89.8% of all agriculture in Greater Sydney.

Industry	Gross Value of Production (\$)	% share of Greater Sydney total	Number of businesses	% share of NSW
Poultry (meat)	\$214.9m	33.3%	65	25%
Nurseries/cut flowers and cultivated turf	\$133.3m	20.7%	235	44%
Poultry (eggs)	\$89.4m	13.9%	47	35%
Mushrooms	\$74.3m	11.5%	12	94%
All vegetables (excluding mushrooms)	\$67.3m	10.4%	347	34%
All other agriculture	\$65.6m	10.2%	659	4%
TOTAL	\$644.8m	100%	1,365	5%

Source: ABS 2015/16 (note: some businesses cover multiple industries)

Poultry meat production is the dominant industry in terms of GVP. The chicken meat industry nationally is worth \$2.7 billion annually, being 44% of all meat consumed in Australia (Cosby and Howard 2019). Vegetable production is the most common type of farm, accounting for 26% of all farms in Greater Sydney and 42% of all the vegetable growing farms in NSW.

Other agricultural industries successfully practiced in Greater Sydney include dairy, contributing over \$18.9m to the agricultural GVP, pork and hay production.

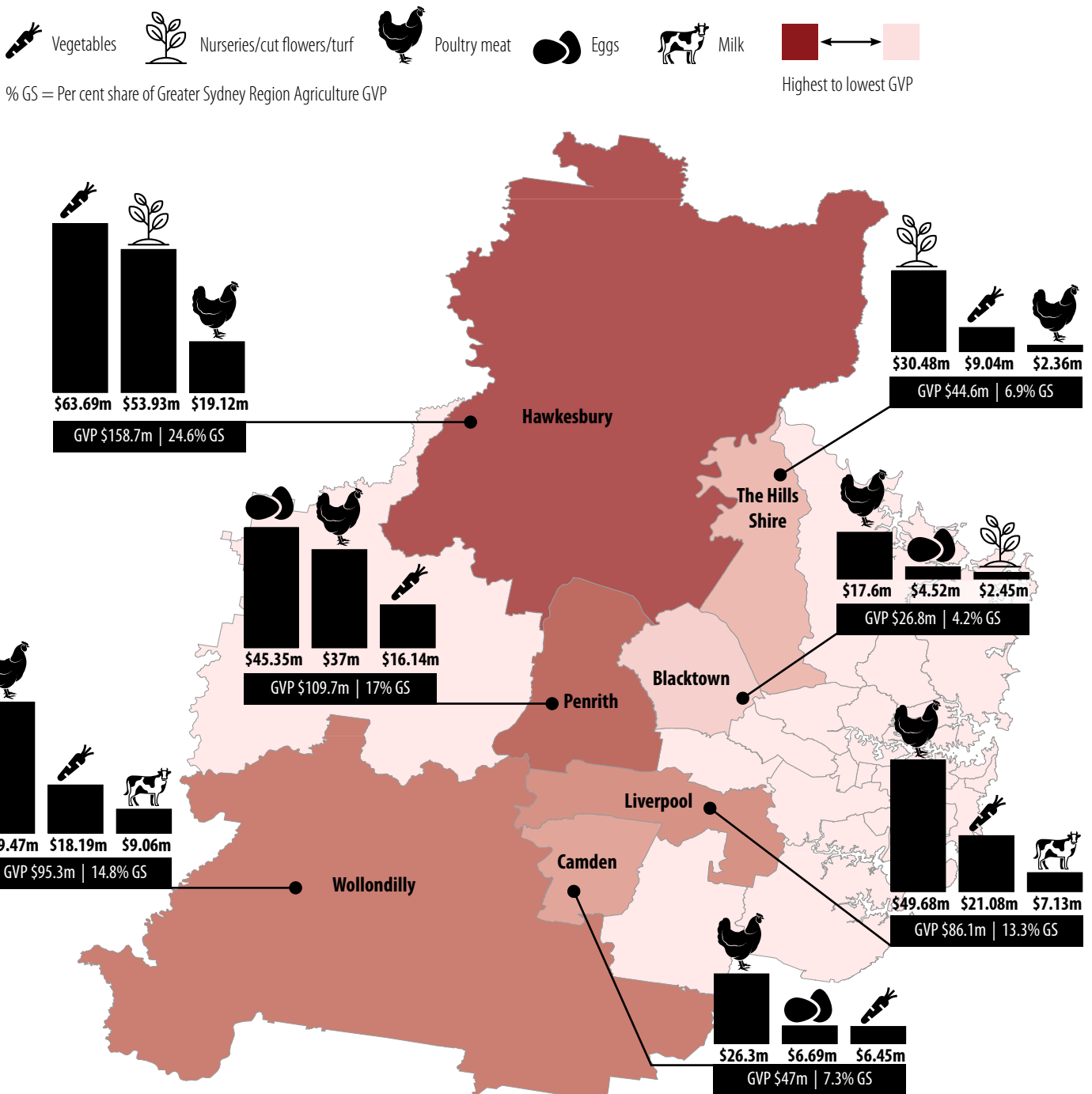
Employment

Agriculture employs over 6,873 people across Greater Sydney (ABS, 2015/16). The biggest contributor is the vegetable industry (27.2%) followed by nursery and flora production (20.3%) and poultry (12.5%), both meat and eggs. The LGAs with the highest agriculture employment are Hawkesbury (12.1%) and Penrith (9.4%). These are people directly linked to the primary production of agriculture and do not include the vast employment within the key secondary industries. It does not include employees that are hired on a seasonal bases that were not working in Greater Sydney during the ABS census collection time of the year.



Local government distribution

The following map shows the LGAs in Greater Sydney with an agricultural GVP greater than \$25m (ABS 2015/16). These seven LGAs contributed 88.1% of the total agricultural GVP for the region. Notably, Hawkesbury provided the greatest GVP at \$158.7m.



Agricultural highlights of Greater Sydney

Farming in urban areas such as Greater Sydney provides benefits and opportunities for farmers and urban populations. By sustaining agriculture close to cities (the peri-urban area), there are advantages for farmers ranging from opportunities for market differentiation and alternative income streams, access to labour, resources and materials, higher land values allowing increased borrowing ability, opportunities to grow high value crops which benefit from market proximity (reduced food miles and spoilage). This section highlights the prominent industries for Greater Sydney, with further detail provided in Appendix 1.



Poultry

Meat

Demand for poultry meat continues to grow (DPI 2019) and there is pressure on farms to increase supply. However, there are instances where poultry farms in Greater Sydney are under pressure from urban encroachment, restricting expansion. These restrictions combined with changes in the industry towards free range production systems and RSPCA-approved farms with lower stocking rates will make it more difficult for existing farms to increase productivity and enhance competitiveness (DPI 2019). This has been reflected in some producers moving production to other regions of the state where land is cheaper and less constrained.

The poultry meat industry in Greater Sydney is dependent on the critical mass of product passing through local processing plants. The vertical integration of the industry will mean that should land use or market pressures continue to increase then this industry is likely to require intervention and support to hold its future position in, or transition away from, Greater Sydney.

Eggs

While there has been growth in egg production state-wide, this was at a much lower in Greater Sydney. This reflects a reduction in the number of business due to pressure from expansion of urban development. This retraction also reflects a trend for gradual movement of egg production away from the Greater Sydney and into the Capital Region, Hunter Valley and Mid North Coast regions.

Industry requirements

Poultry operations rely on a range of factors – proximity to processors, access to a suitable workforce and potential to grow the business by expanding the number of sheds and chickens produced (Cosby and Howard 2019).

The key inputs for the poultry industry are:

- feed – mainly grain sourced externally and mixed onsite
- road access for feed and livestock transport
- reliable supply of suitable quality water
- access to labour
- reliable electricity for a range of critical requirements eg moderating shed temperatures

The key secondary industries for the poultry meat industry are:

- processing facilities
- means for disposal of dead birds, litter and manure
- transport and access to processing facilities and markets.



Nurseries/cut flowers/turf

There have been varying trends in the different component industries in the nursery/cut flower/turf sector. In general, this sector has seen a reduction in the number of businesses and the area of land used for production and modest increases in GVP. The strong growth of greenfield urban development in Greater Sydney will ensure a ready market for turf and nursery products and this is unlikely to change significantly as land use planning policies for 'greener' urban areas mature.

Industry requirements

The nursery industry relies on many of the similar secondary industries as the other agricultural industries in the region being machinery and irrigation equipment suppliers, mechanics, freight and logistics industries, competent trades and rural supply stores. The industry does require specialist potting mix suppliers, and suppliers of pots and associated equipment, which are readily transportable and available.



Mushrooms

The Greater Sydney mushroom industry has seen significant change over the last 20 years with many businesses closing down in the 1990's and 2000's due to land use conflict. At the same time there has been a shift from smaller family-run farms to larger corporate farms, reflected in the fact that, from 2010 to 2018, the number of businesses and the area of land used for mushroom production reduced significantly. Despite these changes in business number and composition there was only a small decline in GVP.

Industry requirements

The mushroom industry is reliant on supply of labour and substrate. The mushroom industry is very labour intensive with mushrooms picked and packed by hand. The main secondary industry involves transport of product and substrate. Substrate is derived from composted agricultural waste. Some mushroom production businesses compost their own substrate though still require raw materials. Once used the substrate is sold for landscaping and soil mixes. Transport linkages for the delivery of these components is essential.



Vegetables

Vegetable production is declining in Greater Sydney, although 61% of NSW's outdoor vegetable production and 71% of indoor production is based in the region. This has reflected the increased competition and the resulting need for productivity increases which have not been possible without the expansion of existing businesses onto larger properties. The specific industry analysis in Appendix 1 details the number of businesses for each LGA.

Industry requirements

The vegetable industry, both the protected cropping and inground variants, are reliant on several ancillary industries that are also utilised by other agricultural enterprises. These industries include machinery and irrigation equipment suppliers, mechanics, freight and logistics, trades, and rural supply stores.

Greater Sydney Region assets for agriculture



Supporting industries and infrastructure

Before agricultural produce makes it to market, producers require inputs, such as fertiliser and fuel, technical support services such as agronomists and mechanics, processing facilities such as mills, packing plants and cleaning facilities, and transport services and infrastructure. Efficient access to infrastructure and supporting industries is critical to the ongoing production of food and fibre from agriculture.

The Greater Sydney agricultural industries are fortunate to possess a comprehensive and diverse supply of support services and infrastructure in close proximity. The interactions of these agricultural industries with their secondary industries is a critical consideration in planning for agricultural land uses.



Climate

The Bureau of Meteorology characterises Greater Sydney's climate zone as warm temperate with warm summers and cold winters, with an average annual daily maximum temperature between 21-24°C. As expected there is variation across the region. Observatory Hill has an average maximum temperature of 21.8°C and minimum of 13.8°C. Away from the coastal influence at Badgerys Creek average minimum temperature is 10.8°C and maximum 24°C (BOM 2020). These climatic conditions make Greater Sydney ideal for a wide range of crops and horticultural production.



Water

Average annual rainfall across the region ranges from 1,000-1,500mm, with low variability apart from slight autumn and summer maximums. As with temperature there is variation across the region: at Observatory Hill, the annual average rainfall is 1,200mm, while away from the coastal influence at Badgerys Creek the average annual rainfall is around 650mm. There is also great potential for recycled water supply from urban wastewater and stormwater to satisfy the needs of future agricultural industries.



Soils

European land use and settlement patterns in Greater Sydney have been shaped by the physiography and soils of the Cumberland Plain and the adjoining Hornsby, Woronora and Blue Mountains Plateaux (Haworth 2003). The Cumberland Plain is a tectonic depression that extends across all Western Sydney and some parts of the Southern Highlands, with a narrow section that stretches from Parramatta towards the coast (Fitzgerald 2009).

The Cumberland Plain is underlain by shale-derived soils and is characterised by plains, low rises and rolling hills with clay-rich soils. The shale-derived soils are much more fertile than the sandy soils due to higher nutrient levels and greater water holding capacities. The shale landscape forms a typically soft, rolling hilly landscape. The Sydney Podzolics are naturally deficient in phosphorus, but if provided can support good pastures and crops. The higher nutrient level and greater water holding capacity of the soils have been integral to the ongoing success of the various horticultural and grazing industries in the region.



Locational advantage

Interest in urban agriculture has been rising in Australia, linked to awareness of food production systems, reducing 'food miles' and buying locally, as well as increased concern for freshness (seasonality) and the nutritional quality of food consumed ('clean and green'). It is also recognised that agricultural land provides ecosystem services and other benefits for urbanised communities that warrant its support and preservation through planning instruments, despite the inherent difficulties of coexistence with urban sprawl (Brinkley 2012).

Peri-urban agriculture also plays a positive role in providing open space amenity landscapes as well as food security. These benefits are available in Greater Sydney with the reciprocal advantages for producers of a ready market, access to supply chains and value adding.



Challenges for agriculture in Greater Sydney and planning solutions

Agricultural land is a finite resource, particularly in Greater Sydney where decades of fragmentation and encroachment of residential development have displaced dairies, horticulture, orchards and intensive livestock farming.

This section highlights some of the challenges faced and planning solutions.



Historic land use planning

Historical planning policy has not strategically valued and protected rural land in peri-urban areas, instead regarding it as 'urban land in waiting' (Houston 1993).

The absence of dedicated planning policy for agriculture has resulted in local environmental plans (LEPs) that do not support agriculture in practice. Agriculture has spatial, biophysical and production criteria that can be similar to industrial development, especially intensive industries. However, in LEPs industrial zones are located in dedicated areas with development controls managing incompatible development. In contrast, rural planning provisions often allow incompatible development and subdivision that affect farm amalgamations, expansion or intensification plans and ultimately restrict a farmer's ability to make a living.

Planning solution

Future land use planning must recognise the importance of agriculture to society and the economy and also recognise that the land and resources on which agriculture depend need to be protected and managed to enable continued use of the land for agriculture.

The challenges discussed can lead to the following adverse impacts for agriculture if they continue to occur:

- **Inflated land prices** prevent farm expansion as residential land values are in a different market to agricultural land values.
- **Differing expectations:** Complaints are made to authorities from neighbouring residents about legal farming activities such as traffic movements, dust, noise, odour, resulting in adjustments being required to operations.
- **Loss of critical mass:** Urban encroachment gradually results in the loss of farmland and supporting services (a critical mass required for commercial viability), requiring farmers and processors to source inputs from further afield.
- **Uncertainty:** Land use conflict and the variable impacts on farming makes it difficult to plan for future investment in the industry. Pressures of encroaching development often result in farmers either selling land for non-rural uses or continuing to farm with the issue of land use conflict.



Urban encroachment and competing land uses

The land use zones that apply to the land on which agriculture occurs permit a wide range of other land uses. As population growth requires increased residential development there will be pressure to use rural land on the periphery of urban areas to accommodate residential development and other urban land uses. This competition for rural land on which agriculture can occur can lead to increased land prices and uncertainty for agricultural industries and investors. This competition for land often results in dislocation and transfer of agriculture to other areas, sometimes at great personal cost to producers and their industry.

Planning solution

Planning controls which limit the range of non-agricultural land uses that are permissible in zones applied to agricultural land can prevent the encroachment of urban land uses on agriculture. Clear and robust strategic planning policy and land use strategies are important to guide future urban growth to locations where it will not have adverse impacts on agriculture.



Land fragmentation

The majority of agricultural land uses in Greater Sydney occur in the Metropolitan Rural Area (MRA). Rural land in the region is characterised by a highly fragmented land use pattern (Clark 2017) provided an analysis of lot size in the MRA which shows of the privately owned land in the MRA:

- 5% is comprised of lots of than 5ha in size
- 8% is between 5 and 20ha
- 3% is between 20 and 40ha
- 3% is between 40 and 100ha
- 4% is greater than 100ha in size.

The remaining 77% of the MRA is contained in rural villages (approximately 4%) or is public land used for conservation, recreation, drinking water catchments and defence purposes (approximately 73%).

As noted, adverse impacts on agriculture can occur where there is a high degree of land fragmentation. Competition from non-agricultural land uses results in higher land prices for undersized rural lots. Small rural lot sizes limit the ability of new agricultural enterprises to achieve required buffer distances or expand their operations. Expansion of agricultural operations in a fragmented rural landscape often means significant investment to purchase additional land. When additional land is not available for expansion producers usually increase productivity via intensification of operations, a process which can increase the potential impacts on nearby non-agricultural land uses or require significant investment to mitigate potential impacts.

Planning solution

Planning policy which sets an appropriate minimum lot size and prevents the further subdivision of rural land, except where there is a demonstrated agricultural need, can prevent the adverse impacts of land fragmentation.



Statutory land use decision making

The time and cost involved in the development approval process can constrain the capacity of agriculture industries to quickly respond to market forces. Intensive agriculture land uses often require extensive site and impact assessments from specialist consultants and state agencies, while perceived environmental impacts on neighbouring properties can raise concerns in a community about the potential impact of intensive agricultural land use.

Planning solution

Clear development controls which specify requirements for intensive agricultural development, and non-agricultural developments in the vicinity of existing agricultural land uses, are integral to minimizing community concerns and avoiding unnecessary cost and delays. Consistent requirements for information to support development applications can also streamline the application process for proponents and assist consent authorities to manage community expectations. It is important for both the agricultural industry and the community that the development approval process results in well managed agricultural land uses in the right location to enable the continued use of the land for agricultural production for the benefit of the wider community.



Land use conflict

Expansion of urban land uses and rural residential housing in rural areas creates potential for land use conflict with agricultural land uses. This in turn places pressure on producers to adjust their normal farming practices to minimize impacts which can increase costs and threaten viability.

Planning solution

Planning policy and controls which prevent land uses in rural areas that are incompatible with agriculture can minimize the potential for land use conflict. Planning controls which require adequate buffer distances between land uses can mitigate potential impacts from agricultural land uses.



Other challenges

Climate Change

Projections for climate change include higher temperatures, higher evaporation rates, changes to the distribution and intensity of rainfall, severe and more frequent heatwaves resulting in more severe bushfire weather and a longer bushfire season. The 'urban heat island' effect is recognised as exacerbating temperatures across the city. These risks will have impacts for agricultural activities where producers will need to invest in methods and infrastructure to mitigate high temperatures and conserve water.

Biosecurity

Rural land in Greater Sydney is at risk from biosecurity hazards such as pests and diseases that could threaten agriculture, the environment and community safety. Biosecurity hazards are managed by the NSW Government through the Greater Sydney Peri Urban Biosecurity Program.

Global connectivity enjoyed as a result of the proximity to the airport and international ports also makes agricultural land uses in Greater Sydney potentially one of the first areas affected by incoming biosecurity risks.

The existing level of land fragmentation and resulting small lot sizes means it is more difficult for an agricultural producer to control the activities occurring within the necessary biosecurity buffer. Biosecurity resilience will depend on operational factors and this can result in increased costs. (Agrology 2018).

Social licence

A social licence to operate refers to the perceptions of local stakeholders that an industry that operates in a given area or region is socially acceptable or legitimate.

It is important for agricultural industries to maintain a social licence for their operations. The agriculture industry's right to farm agricultural land and retain access to water needs to be balanced with responsible and ethical land and livestock management and adherence to best practice operations to minimise the potential for adverse environmental impacts. Producers can help to protect their social licence by open communication and education and positive contributions to their communities. Connecting with local markets and demonstrating low food miles and the importance of local food security can assist in maintaining a social licence for agriculture in a region. Further detail can be found in the NSW Government Right to Farm Policy.

Changing markets and economic conditions

Agriculture is vulnerable to changes in markets and economic conditions. Long lead times for crop production and the need for extensive capital and infrastructure investment to change commodity or farming systems means some agricultural land uses are not capable of quickly adapting to changing markets and economic conditions. Due to the global market for agricultural produce, farmers in Australia are often price takers which can have significant adverse impacts on smaller operations.





Opportunities for Agriculture in Greater Sydney and planning levers

Agriculture is beneficial for cities on many levels: providing ecosystem services, scenic values, open 'green space', value-adding including renewables and a range of benefits through reduced food miles, education, research and food provenance. It supports a supply chain that generates substantial productivity and employment across local, regional and national scales.

This section identifies opportunities for agriculture in Greater Sydney and some planning mechanisms to help implement them.



Intensification

Productivity growth is central to the performance and international competitiveness of Australia's agricultural sector. Where the ability to expand operations onto additional land is not available, intensification of agricultural operations is essential to increasing productivity growth.

Most commercially viable agricultural operations in the MRA are intensive operations e.g. poultry and mushroom production (Clark 2017). Improvements in technology and reductions in capital costs mean that intensification is an increasingly viable and necessary option for ongoing agricultural production. Intensive agricultural operations more closely resemble manufacturing process as they occur in sheds or glass houses where climatic conditions can be better controlled and impacts from noise and odour can be more effectively mitigated.

Intensive agricultural operations usually need to establish infrastructure such as sheds, greenhouses, netting and vehicle access which requires significant capital investment. To secure this capital and see a return on the investment, businesses need certainty that production will be unencumbered by land use planning changes for approximately 25 years.

Controlled climate glasshouse vegetable production is one of the most feasible intensive horticulture propositions. The financial yields are favourable, and their high-tech componentry allows more resilience to environmental fluctuations. The highly intensive nature of these operations enables high revenue generation per given production area making them a viable option for limited, high-value land. If integration with onsite energy generation and a circular economy can be achieved they will become increasingly efficient and economically viable and have the potential for significant production increases (Agrology 2018).

The Western Sydney Aerotropolis precinct will complement the existing agricultural operations in Greater Sydney with the development of an 'agri-port' to provide for the movement and storage of agricultural commodities.

Planning levers to support intensification

- a. Certainty in strategic planning policy and land use planning controls for intensive agricultural operations and neighbouring land can provide the appropriate investment environment for industry expansion.
- b. Rural land use strategy development is key to understanding the needs of various agricultural industries and investigating opportunities and mechanisms to support intensive agricultural industries through LEP controls.
- c. LEP zones and provisions should be applied over intensive agricultural precincts; with land use tables structured to permit intensive agriculture and related industries while prohibiting incompatible land uses such as residential accommodation, tourist and visitor accommodation, commercial and recreational activities.
- d. Minimum lot sizes should be large enough to limit fragmentation of agricultural land, incorporate industry requirements, enable expansion of existing agricultural industries and provide for adequate buffers to incompatible land uses.



Food security

The recognition of the importance for fresh food to be available locally for the health of the community is a key opportunity for agriculture in Greater Sydney. The ability to produce fresh food locally reduces food miles, reduces the cost of the food thereby making it more available for more people and avoids the development of food deserts (Dukes 2019). There is a marketing opportunity for food producers to leverage the benefits of local food production to differentiate their product in the market.

Approximately 20% of the Australian population is located within a 100km radius of the new Western Sydney Airport. The increasing population of Sydney, expected to grow by a further 60% by 2050, will increase demand for food and fibre products while improving transport infrastructure will assist in reducing transport costs. In combination these factors will lead to a higher value being placed on agricultural products.

Planning levers to increase food security

- Strategic planning for rural land must ensure productive land is identified and protective mechanisms provided through the planning framework to enable provision for expansion of urban farms for intensive production, food security and education purposes.
- Councils should zone agricultural land for primary production and only permit agriculture and a range of supporting land uses in that zone.
- Some forms of horticulture may be a suitable permissible use in a range of zones, with opportunities for associated agri-tourism and roadside stalls.
- Minimum lot sizes should be large enough to limit fragmentation of agricultural land, incorporate industry requirements, enable expansion of existing agricultural industries and provide for adequate buffers to incompatible land uses.

Non-Planning levers to increase food security

- An education program will assist councils in delivery of planning mechanisms to protect agriculture.



Diversification and value-adding

The increasing urban population and community interest in the source of food provide an opportunity for diversification of agricultural activities.

Value-adding to agricultural produce and farm gate sales also provide opportunities to increase or augment the income generated from agricultural production. The simplest example of these diversification approaches is a roadside stall to sell excess produce direct to the community while more elaborate processing facilities, such as cheese manufacturing will require significant capital investment and the development of new skills but have the potential to significantly improve the economic viability of agricultural operations.

Agri-tourism in the form of low-key farm stays and bed and breakfast establishments can provide an alternative income stream for agricultural producers while also educating the community about the activities that occur on farm. These ancillary land uses should not compromise the agricultural production being undertaken on the land and agricultural production should be the primary land use.

Greater Sydney provides an opportunity to promote NSW's 'clean and green' production to the world through the high levels of tourism experienced by the region. The development of the agribusiness precinct in the Western Sydney Aerotropolis will assist in promoting this level of agri-tourism internationally for the benefit of agriculture across the state.

Planning levers for diversification and value adding

- Farmers markets ('markets') should be permissible and encouraged by councils in appropriate urban and open space zones.
- Agri-tourism should be associated with and complement the continued agricultural production on the land.
- Agri-tourism should be directed away from intensive agricultural operations or precincts.

Non-planning levers for diversification and value adding

- Intensive agricultural production precincts and businesses may be used for education of the community and tourists around how food supply chains work.
- Roadside stalls, artisan food and drink industries and cellar door premises all offer opportunities to promote NSW's clean green image to the international tourism market.
- Farmers markets could prioritise locally grown or made produce to support local growers.





Circular economies

A circular economy is one that exchanges the typical cycle of make, use, dispose in favour of maximising re-use and recycling. The longer materials and resources are in use, the more value is extracted from them. The circular economy concept is best, and most often, applied in relation to resource consumption and regeneration.

For the agricultural industry a circular economy presents possibilities for significant efficiencies and input cost reductions through energy generation and smart grid distribution; innovative off-grid energy solutions; recycled water use; and opportunities for renewables and waste solutions.

Planning levers to facilitate circular economies

- a. Zones applied to agricultural land should permit resource recovery facilities, water recycling facilities and water supply systems as a means of reusing waste products while also restricting incompatible uses to prevent rural land use conflict.
- b. Minimum lot sizes should account for a potential increase in the need for land area requirements as farming trends towards circular economies. Reuse of effluent and other products on farm to vertically integrate farm inputs and outputs may result in additional and diversified production areas on farm. One example might be the reuse of poultry litter as an input to mushroom substrate, with the mushroom compost ultimately being reused to grow grain crops to feed poultry. In this case either the poultry or mushroom farm may diversify to grow a grain crop with increased land area requirements.



Peri-urban farming, amenity, promotion and education

Greater Sydney is uniquely positioned to provide promotion and education opportunities for the broader agricultural industry. On a local scale agriculture will provide further opportunity for education of communities on how their food is produced and the challenges facing farmers. This education is important for consumers who might not otherwise understand how their food is produced and the intricacies of the food production chain.

Urban farming is important in promoting the contribution of agriculture to the supply of fresh food, reducing food miles, providing an alternative supply of food and greening an area. Informal production systems such as community gardens, market gardens, orchards, bee keeping, edible streetscapes and verge gardens can be important contributors to food security and amenity and an important means of educating the community.

Planning levers for peri-urban farming

- a. Urban land capable of small-scale agricultural production should be identified and facilitated through the planning framework. Suitable locations might include flood prone areas and open space networks.
- b. Information and education facilities should be a permissible land use on agricultural land to enable producers to educate the community on how food supply chains work.

Non-planning levers for peri-urban farming

- c. Consider encouraging food bearing vegetation in landscape plans and open space networks.



Planning toolkit

Best practice land use planning for agriculture includes recognition of the industry as a significant contributor economically, environmentally and culturally, providing recognition and management through all levels of the planning framework. Dedicated land use zones, provisions and minimum lot sizes are available to councils and can effectively support primary production even in contested areas. This section highlights the mechanisms of the planning system to facilitate this.



Strategic planning

Local strategic planning statement

A local strategic planning statement identifies the vision and trends for agriculture in an LGA and sets out the direction for agricultural land uses for the next 20 years. It is important that agriculture, the land it depends upon and the infrastructure and other secondary industries which interact with agricultural land uses are considered at this initial strategic planning stage. The LSPS should explain the economic contribution that agriculture makes to the local economy and reflect the community's expectations for the provision of food and fibre locally. Further information can be found in the following DPI guideline [Local Strategic Planning Statements – Agricultural Planning Advice for Councils](#).

Local rural land use strategy

The GSC sets out the framework and expectations for preparation of local land use strategies in Greater Sydney. The agricultural component of a rural land strategy should identify the agricultural industries in the LGA and the land on which they are located. This is also an effective tool in communicating to the community the scale and importance of agriculture in the LGA. It assists in identifying areas of agricultural land which should be protected from incompatible land uses.

A rural land strategy will identify the linkages primary industries have with secondary industries, infrastructure and other components of the production chain to ensure a holistic picture of the agriculture-related industry. The strategy will clarify the relationship of rural land with residential development and specify the circumstances in which additional fragmentation and residential development may or may not be appropriate. The strategy will also assess the policy framework including existing LEP provisions and make recommendations to retire and/or remove redundant provisions concerning rural subdivision and residential development.

Local environment plan (LEP)

A LEP allows councils to tailor planning controls to address the issues facing agricultural industries in their LGAs. A LEP is informed by the rural land use strategy. The following are mechanisms that can result in positive outcomes for agriculture:

Land use zones: the RU1 Primary Production or RU4 Primary Production Small Lots zones are the most appropriate zones to apply to land which is currently used for agriculture and/or is suited to future agricultural land uses.

Land use zone objectives: The use of specific zones for agricultural land allows the zone objectives to be specific to agricultural land uses and require other permissible land uses to be compatible with agriculture.

Limiting permissible land uses: LEPs can reduce the potential for land use conflict by limiting the range of permissible land uses that are incompatible with agriculture. This is executed by careful construction of land use tables for RU1 Primary Production, RU2 Rural Landscape and RU4 Primary Production Small Lots zones. Councils should review the permissible land uses in rural zones applied to agricultural land or where agricultural industries are located to prevent inappropriate land uses and limit potential for land use conflict.

Minimum lot sizes: The minimum lot size specified in an LEP for rural land needs to be of a scale to prevent fragmentation into lots which cannot support typical agricultural land uses. Generally larger minimum lot sizes facilitate the establishment of larger and more appropriate buffer distance between potentially conflicting land uses. Larger lot sizes also enable expansion or diversification of the agricultural activities without the need to purchase additional land which can be an economically prohibitive option for farm expansion. Where subdivision can occur without enabling additional dwellings to be created this will promote agricultural land uses and prevent land use conflict.



Development control plans and other approaches

Development control plans (DCP)

A development control plan for rural zones should include clear and practical guidance for agricultural land uses. A DCP can specify buffer distances to be applied to all land uses, both agricultural and non-agricultural, to ensure that new land uses do not increase the potential for land use conflict with existing neighbouring properties. Guidance on appropriate buffer distances is provided in the Department's [Buffer Zones to Reduce Land Use Conflict with Agriculture - An Interim Guideline](#).

Novel approaches

In some instances councils may need to apply both planning approaches and non-planning advocacy to achieve positive outcomes for the agricultural industries in their LGAs. For example councils can:

- Set up a rural industry liaison committee to establish links between council and farmers and provide a forum for discussion of the issues facing agriculture in the LGA.

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- Consider special planning controls for specific agricultural precincts which might include restrictions on land fragmentation and prohibition of incompatible land uses.

Industry can provide advocacy through active involvement in land use planning decision making and strategic planning to raise the profile of agriculture. The land use planning system is only one mechanism available to reduce the potential for land use conflict. Agricultural industries can decrease the potential for land use conflict by adopting industry best practice operations which at best eliminate or reduce the impact of their operations on neighbouring land owners.

Similarly, clear communication with neighbouring properties and an education program targeting sensitive neighbours can help increase understanding of the reasons for some agricultural practices and prevent nuisance complaints.

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Poultry



Poultry meat

Poultry meat is the highest value agricultural industry contributing \$214.9m, being 88.9% of Greater Sydney total livestock meat production. This production represented 25% of NSW and 8% of Australia's total poultry meat by GVP.

Distribution of poultry meat production by local government area

There are 92 poultry meat farms across six local government areas in the Greater Sydney Region which produce poultry meat.

LGA	Gross Value of Production (\$)	% share of GS Poultry	% share of NSW Poultry	No. of businesses
Liverpool	\$49.7m	23.1%	5.7%	16
Wollondilly	\$49.5m	23.0%	5.6%	15
Penrith	\$37.0m	17.2%	4.2%	11
Camden	\$26.3m	12.2%	3.0%	6
Hawkesbury	\$19.1m	8.9%	2.2%	3
Blacktown	\$17.6	8.2%	2.0%	6
TOTAL	\$199.2m	92.7%	22.8%	57

Trends

In the period 2010 to 2018 the GVP and production of poultry meat in Greater Sydney increased by 6% (\$11m). This was however a slower increase than that of NSW as a whole which increased by 14% (\$97m).

There has been a reduction in the number of poultry meat businesses in Greater Sydney which reflects the movement of poultry meat businesses to other areas of NSW such as the Riverina Region which experienced significant growth in the industry with an increase of \$204m (by 534%) to \$242m and five new businesses.

The industry is undergoing on farm changes due to animal welfare and consumer tastes. Producers are now reducing bird

densities to achieve certification under RSPCA guidelines and respond to market pressures. There are increasing numbers of farms undertaking free range and cage free production systems. These changes in production systems are leading to producers needing to increase the area of land used for poultry to increase production and maintain profitability.

Eggs

Egg production in Greater Sydney is valued at \$89m. Approximately 35% of eggs in NSW are produced and packed in Greater Sydney (ABS 2017) from 32 licenced egg farms.

Distribution of egg production by local government area

The top five egg producing local government areas in Greater Sydney are:

LGA	Gross Value of Production (\$)	% share of GS Eggs	% share of NSW Eggs	No. of businesses
Penrith	\$45.4m	50.8%	17.6%	8
Hawkesbury	\$18.7m	20.9%	7.2%	9
Camden	\$6.7m	7.5%	2.6%	4
Fairfield	\$6.7m	7.5%	2.6%	1
Wollondilly	\$5.2m	5.8%	2.0%	10
TOTAL	\$82.6m	92.4%	32.0%	32

Trends

While GVP and egg production increased in NSW during the period 2010 to 2018, Greater Sydney production increased at a slower rate. GVP for NSW increased by 36% (\$69m) whereas Greater Sydney only increased by 8% (\$5m).

There has been a net reduction in the number of egg producing businesses with movement of egg production away from Greater Sydney into the growth regions of Capital Region, Hunter Valley and Mid North Coast.

Poultry meat and eggs locational requirements

Commercial poultry meat and egg production is predominantly undertaken within sheds. The poultry industry is not reliant on land with favourable biophysical characteristics, however there are specific locational considerations for poultry meat and egg producers which include:

- a trained workforce
- means of disposing of dead birds, manure and other wastes
- access to:
 - grain
 - road access for feed and livestock vehicles
 - reliable supply of suitable quality water
 - electricity
 - processing plant and feed mill
 - labour
- scope for future expansion
- biosecurity issues.

Processing facilities and markets

The poultry meat industry developed in the Greater Sydney Region due to its close proximity to processing plants and major markets. Farms need to be within 150-200km of processing plants to ensure that birds are not transported long distances. The major processing plants located in the Greater Sydney Region are facilities at Girraween and Galston (Cordina/Summertime Chicken) and at Windsor (Pepe's Ducks). Cordina/Summertime Chicken also have a hatchery at Girraween. These two companies employ approximately 1,100 people with a further approximately 2,000 employed downstream.

The egg industry has developed here due to its close proximity to the major markets.

Feed source

The industry is dependent on a cheap and reliable source of feed. Grain is transported from storage facilities across NSW to Sydney.

Utilities and infrastructure

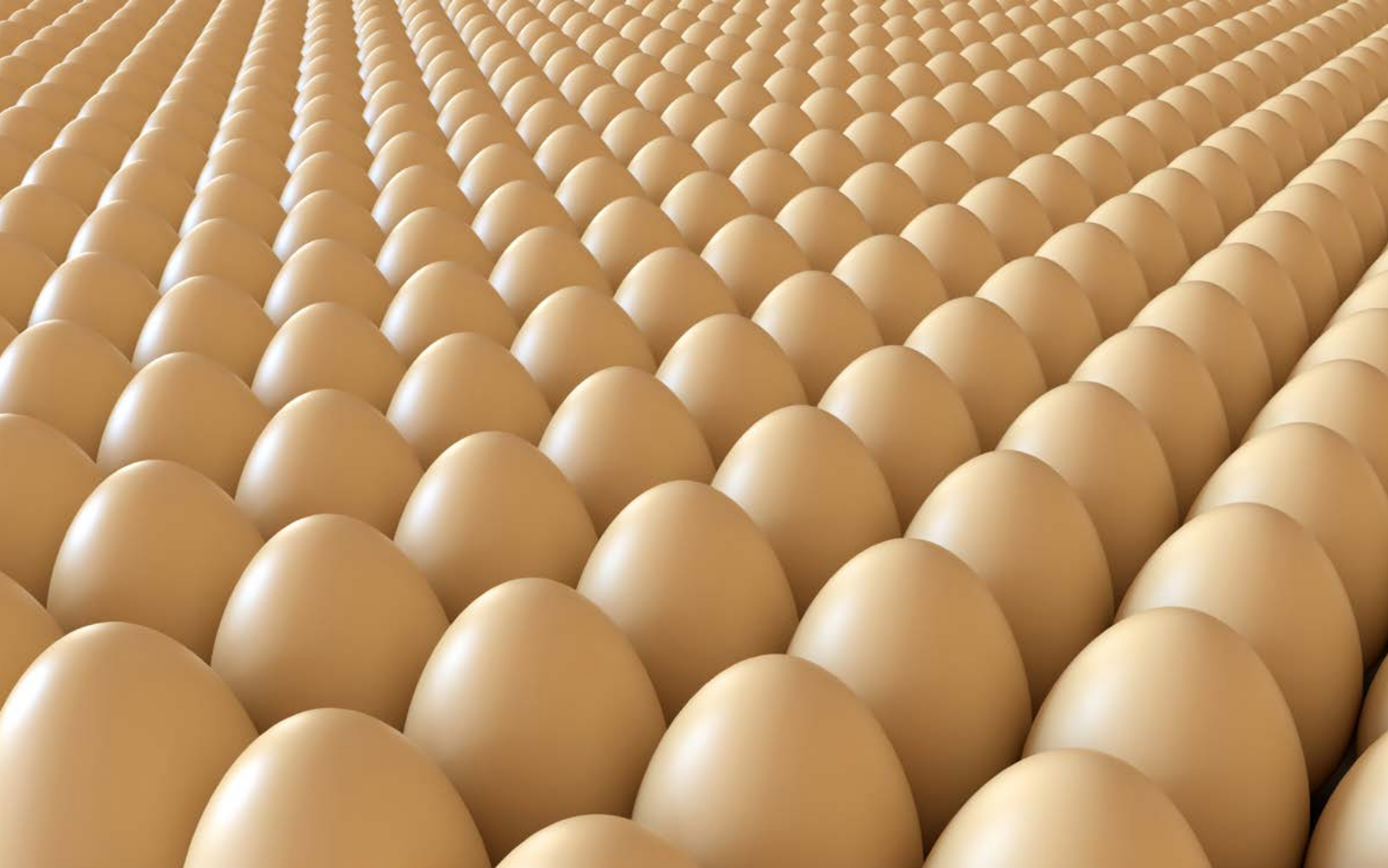
The poultry industry requires a good supply of water, affordable land, and access to utilities like power and gas. The industry requires good transport connections to markets, processing plants and feed suppliers.

Land attributes

The poultry meat and egg industries are made up of predominantly shed raised birds. The production of poultry, particularly that which occurs in sheds, does not require land with high biophysical attributes. The poultry meat farms are generally vertically integrated with birds being raised by a farmer, who has a contract with one of the processing companies.

Biosecurity

Biosecurity issues can arise if there is a concentration of producers adjacent to each other. Industry recommends that poultry farms are located at least one kilometre from each other to ensure that diseases do not spread rapidly.



Secondary industries

The industry requires some specialised ancillary industries such as clean out contractors, wash out contractors and transport/haulage firms. Otherwise many of the ancillary industries required by other agricultural industries are also required such as tradespeople and rural suppliers.

Feed and transport

Other industries associated with the poultry industry include feed mills and feed delivery and live bird transport.

Challenges

Land use conflict

Land use conflicts with sensitive neighbouring land uses and a lack of understanding of industry operations is the primary challenge for the poultry industry. In order to maintain economic viability producers need to increase the number of sheds on farms. This expansion is being restricted by a lack of suitable land on which to expand and the land use conflict issues that arise from expansion of operations. Mitigating against land use conflict through effective land use planning and providing improved infrastructure are the primary tools to ensure the viability of the poultry meat industry in Greater Sydney.

Expansion

The major threat to the continued operation of the poultry industry in Greater Sydney is the inability to expand. Generally, producers need to increase the scale of their operations to remain competitive. Poultry farms comprising around three or four sheds may have to expand to around six to eight sheds to meet demand and maintain viability.

Opportunities

By-product use

The industry provides an organic product which is in high demand for organic farming and soil ameliorant. The industry uses a by-product from the timber industry (sawdust) which is used in the sheds as a bedding material.

Free-range

An emerging trend in the poultry industry is free-range production. This approach has different animal welfare requirements though may provide marketing advantages. The disadvantage of free-range production is that industry research indicates that free-range chickens are less productive, and more prone to disease.

Planning Considerations

The predominant planning consideration for the poultry meat industry is mitigation of the impacts of urban encroachment and resulting land use conflict. Of the 92 poultry farms in Greater Sydney, 45 are located in or near identified urban land release areas. As urban development displaces these farms the viability of the processing facilities and therefore the other farms which rely on them will be at risk.

Nurseries, cut flowers and cultivated turf

Cultivated turf was the highest contributor to Greater Sydney total 'nurseries, cut flowers and cultivated turf' GVP, contributing \$55.4m (41.6% share) followed by nurseries with \$43.9m (33.0%) and cut flowers, \$34.0m (25.5%).

Distribution of nurseries, cut flowers and turf producers by local government area

Turf

The main local government areas to produce cultivated turf are:

LGA	Gross Value of Production (\$)	% share of GS cultivated turf	% share of NSW cultivated turf	No. of businesses
Hawkesbury	\$48.5m	87.5%	59.3%	51
Penrith	\$2.7m	4.9%	3.3%	3
TOTAL	\$51.2m	92.4%	62.6%	54

The Greater Sydney cultivated turf industry accounts for 67% of the NSW cultivated turf industry with the Hawkesbury region accounting for 59.3% of total NSW production. Average GVP was \$948,000 per business.

Nurseries

The main local government areas to produce plants (nurseries) are:

LGA	Gross Value of Production (\$)	% share of GS nurseries	% share of NSW nurseries	No. of businesses
The Hills Shire	\$13.6m	31.0%	9.3%	33
Hornsby	\$8.3m	18.9%	5.7%	21
Wollondilly	\$5.7m	13.0%	3.9%	14
TOTAL	\$27.6m	62.9%	18.8%	68

Cut flowers

The main local government areas to produce cut flowers are:

LGA	Gross Value of Production (\$)	% share of GS cut flowers	% share of NSW cut flowers	No. of businesses
The Hills Shire	\$15.1m	44.4%	21.2%	30
Hornsby	\$5.4m	15.9%	7.6%	14
TOTAL	\$20.5m	60.3%	28.8%	44

The Greater Sydney cut flowers industry accounts for 28.8% of the NSW cut flowers industry. Average GVP was \$466,000 per business.

Trends

Turf

Trend analysis over eight years from 2010 to 2018 for the cultivated turf industry in Greater Sydney indicated:

- an increase in GVP from approximately \$50m to approximately \$77m
- a relatively consistent number of businesses (approximately 65)
- a slight reduction in the area of land used for turf production from approximately 1,600ha to approximately 1,450ha.

Nurseries

Trend analysis over eight years from 2010 to 2018 for the nursery industry in Greater Sydney indicated:

- an increase in GVP from approximately \$60m to approximately \$100m
- a reduction in the number of businesses from approximately 190 to approximately 105
- a slight reduction in the area of land used for nurseries from approximately 400ha to approximately 300ha.

Cut flowers

Trend analysis over eight years from 2010 to 2018 for the cut flower industry in Greater Sydney indicated:

- a decline in GVP from approximately \$23m to approximately \$13 million
- a slight reduction in the number of cut flower businesses from approximately 100 to approximately 80
- a relatively consistent area of land used for cut flower production (approximately 200ha).

Locational requirements

Soils

Turf is generally cultivated along the alluvial flats in the north west of Greater Sydney where the productive soils and large areas of flat land are conducive to growth and harvesting.

Outdoor nurseries

The outdoor nurseries are generally growing out plants in pots so do not require high quality soils. The pots are located on benches to hold potted plants above the ground. Greater Sydney is suited to the nursery industry due to its generally mild climate.

Transport

The nursery industry requires good transport connections to get stock to market. The close proximity of the Sydney market is a significant advantage for nurseries.

Water supply

Greater Sydney generally has a reliable water supply as a result of regular rain events. Water accessibility for irrigation is one of the major limitations for field grown crops as farmers are reliant on rainwater or groundwater for their irrigation supplies.

Site characteristics

Most nurseries have been established on properties with little to no slope where cut and fill can be minimised. The sites are generally contoured and drained to retain water, and ensure runoff does not cause a nuisance to neighbouring properties.

Secondary industries

The nursery/turf/cut flower industry relies on many of the similar secondary industries as the other agricultural industries in the region including machinery and irrigation equipment suppliers, mechanics, freight and logistics, trades, and rural supply stores. The nursery industry does however require specialist suppliers of potting mix, pots and associated equipment.



Challenges

Increased urbanisation

Increased urbanisation and rural residential developments have resulted in an increase in the price of rural land which is an impediment to new entrants to the horticultural/turf industry or the expansion of existing operations. Urban encroachment and use of rural land for rural residential purposes also generates increased potential for land use conflict between horticultural operations and sensitive land uses such as residential and tourism land uses. Rural land is also vulnerable to competing land uses that are permissible in rural zones, such as rural residential, and some industrial land uses.

Land use conflict

One of the major threats to the continued operation of nursery/turf/cut flower enterprises is land use conflict arising from increased urban encroachment.

Skilled labour force

Participants of the nursery industry consider the sector to be an attractive industry due to the conditions, pay and ease of access, however the lack of skilled and willing labour is a challenge to the nursery industry.

Water availability

Water availability is critical to the nursery industry. As climate change impacts rainfall patterns, increased dry periods will place pressure on operations. The ability for operators to maximise water usage may affect the viability of some nursery operations. These impacts may be somewhat offset by the trend towards protected cropping and indoor nurseries where management of water supply is easier.

Opportunities

Proximity to Sydney market

The nursery/turf/cut flower industry is perfectly located within a short distance of the Sydney market with good transport links to be able to transport products to markets quickly. There are opportunities to develop niche industries in the area to take advantage of these links.

Protected cropping

There is potential to improve production using protected cropping methods. Investment into protected cropping infrastructure enables more efficient water use, better management of pests and diseases and the advantage of being able to grow products out of season.

Planning considerations

Aside from urbanisation, land use conflict and competing land uses the prevalence of turf farms on flood prone land is a concern for the industry. As urbanisation and climate change increase the amount of surface water runoff in storm and flood events, the impact of such events on the land that supports turf farming will increase.



Industry future focus

Protected cropping

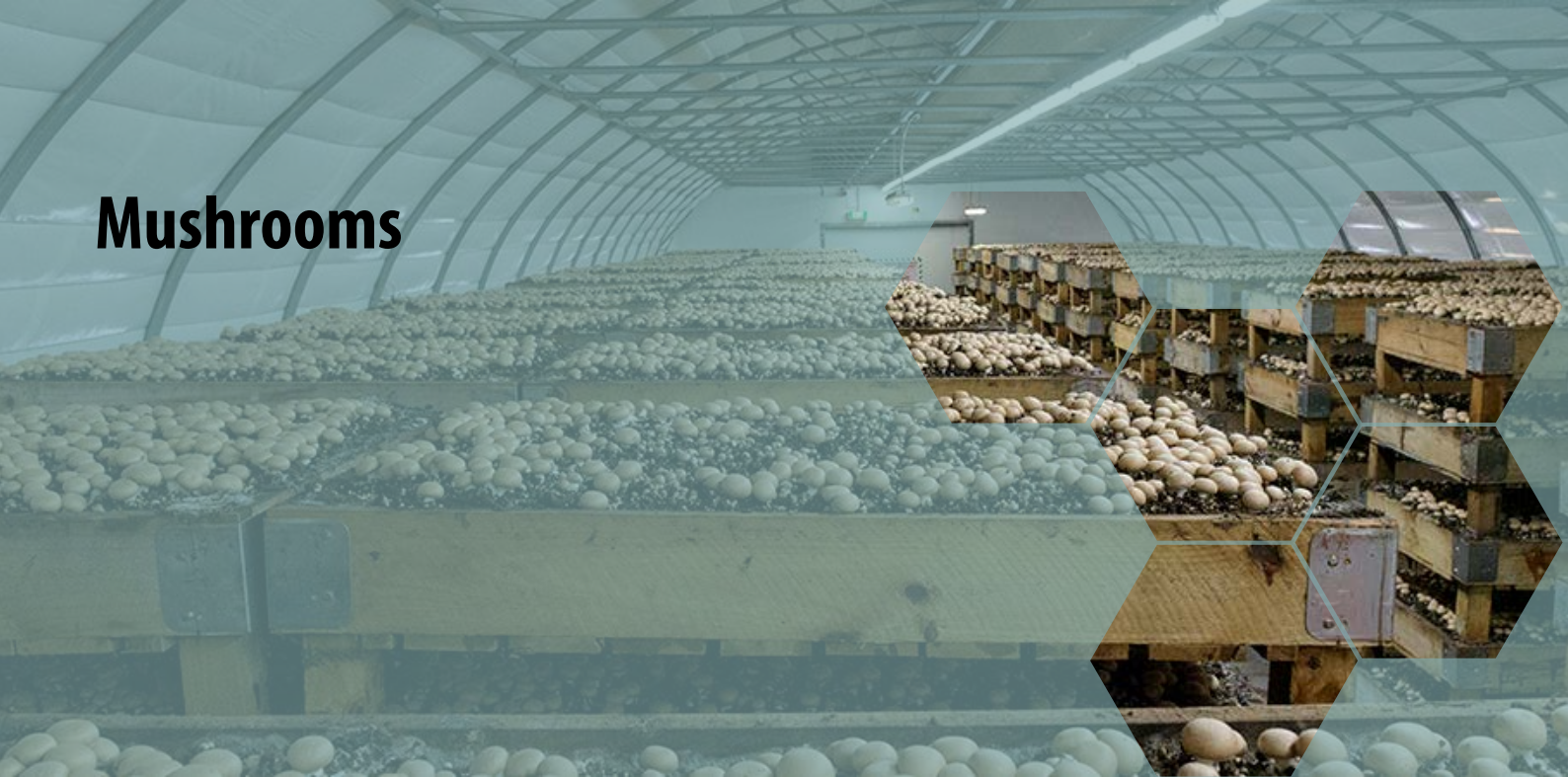
Intensification of production through protected cropping is considered to be the future of horticultural production as it allows for greater control of growing conditions, minimises use of chemicals and allows for higher yields from a small area of land.

Outdoor nursery production is being replaced by indoor production systems due to efficiencies in water use, quality control and better yields.

Technology

As with most industries today the nursery industry is adopting new technology to improve efficiency and quality of production. As the cost of this technology decreases and productivity improves it is expected there will be an improvement in the economic viability of nursery operations.

Mushrooms



The mushroom industry in Greater Sydney accounts for 94.4% of the total NSW mushroom industry with the Hawkesbury LGA accounting for 56.2% of total NSW production. Of the 18 mushroom growing businesses in NSW, 12 are located within the Greater Sydney Region over just 26.8ha.

Distribution of mushroom producers by local government area

The local government areas in Greater Sydney which produce mushrooms are:

LGA	Gross Value of Production (\$)	% share of GS Mushrooms	% share of NSW Mushrooms	No. of businesses	Production (kg)	Area (m ²)
Hawkesbury	\$44.2m	59.5%	56.2%	6	6.9m	161,549
Liverpool	\$13.7m	18.4%	17.4%	3	2.1m	17,076
Penrith	\$10.7m	14.4%	13.6%	1	1.7m	48,308
The Hills Shire	\$5.5m	7.4%	7.0%	1	0.9m	19,174
Camden	\$0.2m	0.3%	0.2%	1	0.03m	22,272
TOTAL	\$74.3m	100.0%	94.4%	12	11.6m	268,378

On average, mushroom producing businesses occupied approximately 2.3ha, produced 985,500kg of mushrooms per business had a GVP of \$6.19m per business.

Trends

In the period from 2010 to 2018 the mushroom industry has experienced the following trends:

- a small (9% or \$7.3m) decline in GVP;
- a decline in production by 30% from approximately 14,500 tonnes to approximately 10,000 tonnes
- a reduction in the number of businesses from approximately 27 to 12
- a decline in the area of land used for mushroom production from approximately 45ha to approximately 27ha.

The Greater Sydney mushroom industry has seen significant change over the last 20 years with many businesses closing down in the 1990's and 2000's due to land use conflict. There has also been a shift from smaller family run farms to larger corporate farms.

Locational Requirements

Certainty

For intensive agricultural developments which require significant capital expenditure in the form of buildings, equipment, plant and labour the industry needs assurance that it will be able to undertake approximately 25 years of uninterrupted production to justify the capital expenditure to establish the enterprise.

Affordable land

High quality soils and specific climatic conditions are generally unnecessary for mushroom production as the produce is grown within climate controlled structures. The mushroom industry does however require relatively inexpensive land as the development of structures involves extensive capital investment.



Opportunities

Technology

The use of technology and innovation has provided control over growing room temperature, carbon dioxide and humidity levels which enables the shortening of cropping cycles and doubling of production per square metre.

Improved technology has also assisted in the reduction of odour emissions from compost production which reduces the potential of land use conflict (Godwin 2019).

Waste product

Mushroom substrate is composed of wheat straw, poultry litter, other organic materials, gypsum and water. Once the mushroom crop is harvested, this mushroom substrate is in high demand as potting mix and garden mulch (Australian Mushrooms 2020).

Planning considerations

As with other intensive agricultural industries, the predominant planning consideration for the mushroom industry is mitigation of the impacts of urban encroachment and resulting land use conflict.

Industry future focus

Changes in consumer demand have increased the market for mushroom growers. An increased focus on the health benefits of plant-based foods in society is expected to increase the demand for mushrooms as people look for a good source of protein (Godwin 2019).

The productivity of Australian mushroom growers has increased significantly in the past twenty years from average yields of approximately 18kg of mushrooms per square metre to in excess of 35kg for the more efficient growers. Greater productivity has been derived from adoption of new technology, improved management, and more efficient workforces. (Godwin 2019).

Labour

The industry requires good accessibility to a trained workforce. Labour remains the greatest expense as all mushrooms need to be picked and packed by hand. One mushroom producer has developed a three-month training program for pickers to teach the basics of sizing, grading and cutting stems, how to improve efficiency and avoid technique which damages other mushrooms (Godwin 2019). In order to ensure a ready supply of trained labour proximity to large population centres can be necessary.

Proximity to markets

To minimise transport costs and potential damage to produce from the transport process, close proximity to markets in large population centres is an important consideration for mushroom production. This is why the majority of mushroom production in Australia is located close to capital cities.

Challenges

Electricity prices

The production of mushrooms within buildings requires significant energy to control climatic conditions. As energy prices increase the cost of production also increases though may not be accepted by the market.

Skilled labour

Labour remains the greatest expense as all mushrooms need to be picked and packed by hand.

Vegetables



Vegetable production (other than mushrooms) is the fifth largest agricultural industry in Greater Sydney with 241 businesses producing \$31m worth of gross value product (ABS, 2015/16).

Distribution of vegetable production by local government area

The main local government areas in Greater Sydney to produce vegetables (other than mushrooms) are:

LGA	Gross Value of Production (\$)	% share of GS Other Vegetables	% share of NSW Other Vegetables	No. of businesses
Hawkesbury	\$11.9m	31.0%	11.3%	51
Wollondilly	\$6.0m	15.6%	5.7%	24
Camden	\$5.6m	14.6%	5.3%	32
Liverpool	\$4.5m	11.7%	4.3%	53
TOTAL	\$28.0m	72.9%	26.6%	160

Average GVP was \$170,000 per business.

Trends

Vegetable production in the metropolitan rural area has declined. From 2010 to 2015 its contribution to the total NSW share of vegetable production reduced from 36% to 25%.

Horticulture Innovation Australia (2015) found that on average vegetable growing has not been profitable in NSW possibly due to the smaller size of farms limiting the cost advantages derived from economies of scale. Production costs (particularly labour) is the main issue for vegetable growers.

The majority (65%) of Australian vegetable farms are on farms of less than 50ha. There has however been an increase in the number of larger holdings of more than 1,000ha and an overall decrease in the number of farms indicating consolidation of smaller farms and or smaller farms leaving the industry. Horticulture Innovation Australia (2015) found that the larger the vegetable farm the more profitable it is likely to be.

The reduction in vegetable production in Greater Sydney has been offset by a significant increase in vegetable farming in the Central West region of NSW. It is concluded that the availability of larger land parcels in this region has enabled the establishment of more viable vegetable farms.

Locational requirements

Soil and climate

Greater Sydney contains some good quality soils and a mild climate, which are important for inground vegetable cropping. Biophysical Strategic Agricultural Land (BSAL) comprises 5% of the private rural land in the Metropolitan Rural Area (MRA), mostly Land Soil Classification Class 3 as there is no class 1 or 2 here. Of the class 3 land in the MRA, 95% is flood prone land (Clarke 2017). The majority of the BSAL is located north of Richmond. Other areas of BSAL are located in the south west between Campbelltown and Wallacia.

Proximity to markets

A close proximity to the Sydney urban area provides significant benefits in reducing transport costs and providing a skilled labour supply.

Protected cropping

The trend towards protected cropping and high-tech glasshouse production does not require the same high-quality soil as inground cropping systems do. The intensive horticulture industry does however require relatively inexpensive land as the development of structures requires a lot of capital investment. The industry requires reliable access to electricity, water and skilled labour.

Certainty

Intensive horticultural operations which need significant capital expenditure need assurances that production will be unencumbered by land use planning changes for approximately 25 years to justify the capital expenditure needed. When changes to the planning system enable encroachment by urban land uses and result in land use conflict, investment in agricultural businesses can be reduced and infrastructure can become rundown and production decreases.

Secondary industries

The vegetable industry, both the protected cropping and inground variants, are reliant on a number of ancillary industries that are also utilised by other agricultural enterprises. These industries relate to machinery and irrigation equipment suppliers, mechanics, freight – logistics, competent trades, and rural supply stores and can include:

- crop husbandry inputs (fertiliser, pesticides, shade houses, hail netting)
- grading, packing, storage (incl. refrigeration) and transport facilities for produce
- irrigation equipment and water supply
- seasonal labour requirements.

Challenges

The trends in vegetable production in Greater Sydney indicate that fragmentation of rural land, small lot sizes, the difficulty in expanding farm operations to increase productivity and labour costs for smaller farms are the predominant challenges for the vegetable industry.

Additionally, in the last decade competition from foreign vegetable imports, particularly processed and frozen vegetables has increased.

Opportunities

The majority of Australian vegetable production is sold in domestic markets with locally produced vegetables accounting for approximately 85% of vegetable products sold in Australia (Clark 2017). However, export markets offer the greatest opportunity for the vegetable industry. Growing demand from international markets and freeing of trade barriers presents opportunities for vegetable growers (Horticulture Australia Limited 2013).

ABARES (2014) found that the more profitable vegetable growers are more likely to be exporting their produce as expansion into overseas markets mitigates the risks of the domestic market and increases the scope for future growth.

Agri-tourism

There are a number of opportunities for niche enterprises such as organic farming, agri-tourism, farmers' markets, or farm trails. Agriculture benefits from close proximity to Sydney where residents from these areas can visit for the rural atmosphere. There are opportunities for the development of niche industries and possibly a provenance scheme to promote speciality produce and contribute to food security.

Planning considerations

The encroachment of urban land uses and resulting increased land use conflict and higher land prices will restrict the opportunity for expansion of the vegetable growing industry. New land use conflict is likely to result as production mechanisms transition from extensive in ground production to reliance on intensive production mechanisms necessitating the development of greenhouses and other infrastructure which may not satisfy the rural character expectations of the community.

Industry future focus

Intensive horticultural practices, high-tech greenhouses and increased export of produce to burgeoning overseas markets are likely to focus the future direction of vegetable production in Greater Sydney.

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Department of
Primary Industries

For further information please contact us via email: landuse.ag@dpi.nsw.gov.au or visit our website: www.dpi.nsw.gov.au/agriculture/lup