NSW GOVERNMENT | Department of Primary Industries

Agriculture Industry Snapshot for Planning

Illawarra/Shoalhaven Region

August 2020

The gross value of agricultural production in the Illawarra Shoalhaven is over $97.3m (2015/16) and supplies 11% of the State's milk production. However, the expansion of the region's residential and lifestyle development has incrementally pushed farming out of some areas and makes it difficult for remaining producers to operate. Farmers and value-adding industries in the Illawarra Shoalhaven have to deal with increased land use conflict, inflated land prices plus additional, lengthy and costly planning requirements due to competing interests.

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 the Illawarra Shoalhaven 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. 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 the region 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. The region is unique in that proximity to Sydney has led to state government-managed and coordinated housing releases in Wollongong, Kiama, Shellharbour and Shoalhaven local government areas.

In terms of rural land, planning is managed by local councils, guided by the Illawarra Shoalhaven Regional Plan (2015). The Regional Plan has clear messaging about the need to protect and capitalise on the region's agricultural industries, infrastructure and rural land.

Agriculture in the Illawarra Shoalhaven

Illawarra Shoalhaven (IS) LGAs include Wollongong City, Shellharbour City, Kiama Municipal and Shoalhaven City.

Although one of the more populated NSW regions, the Illawarra Shoalhaven Region has a significant contribution to agricultural production in NSW.

The following table shows the Gross Value of Production (GVP) and percentage share of agricultural output for the Illawarra Shoalhaven for each of the top five economic industries. These top five industries alone account for 98.4% of all agriculture in the Illawarra Shoalhaven.

Industry	Gross Value of Production ($)	% share of IS total	Number of businesses	% share of NSW
Milk	$66.3m	68.5%	85	11.1%
Beef	$21.9m	21.9%	111	0.9%
Nurseries, cut flowers, turf	$3.8m	3.9%	13	1.3%
Hay	$2.4m	2.5%	52	0.7%
Broadacre crops	$1.3m	1.3%	6	0.03%
Other agriculture	$1.8m	1.9%	-	0.01%
TOTAL	**$97.3m**	**100%**	**219**	**0.74%**

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

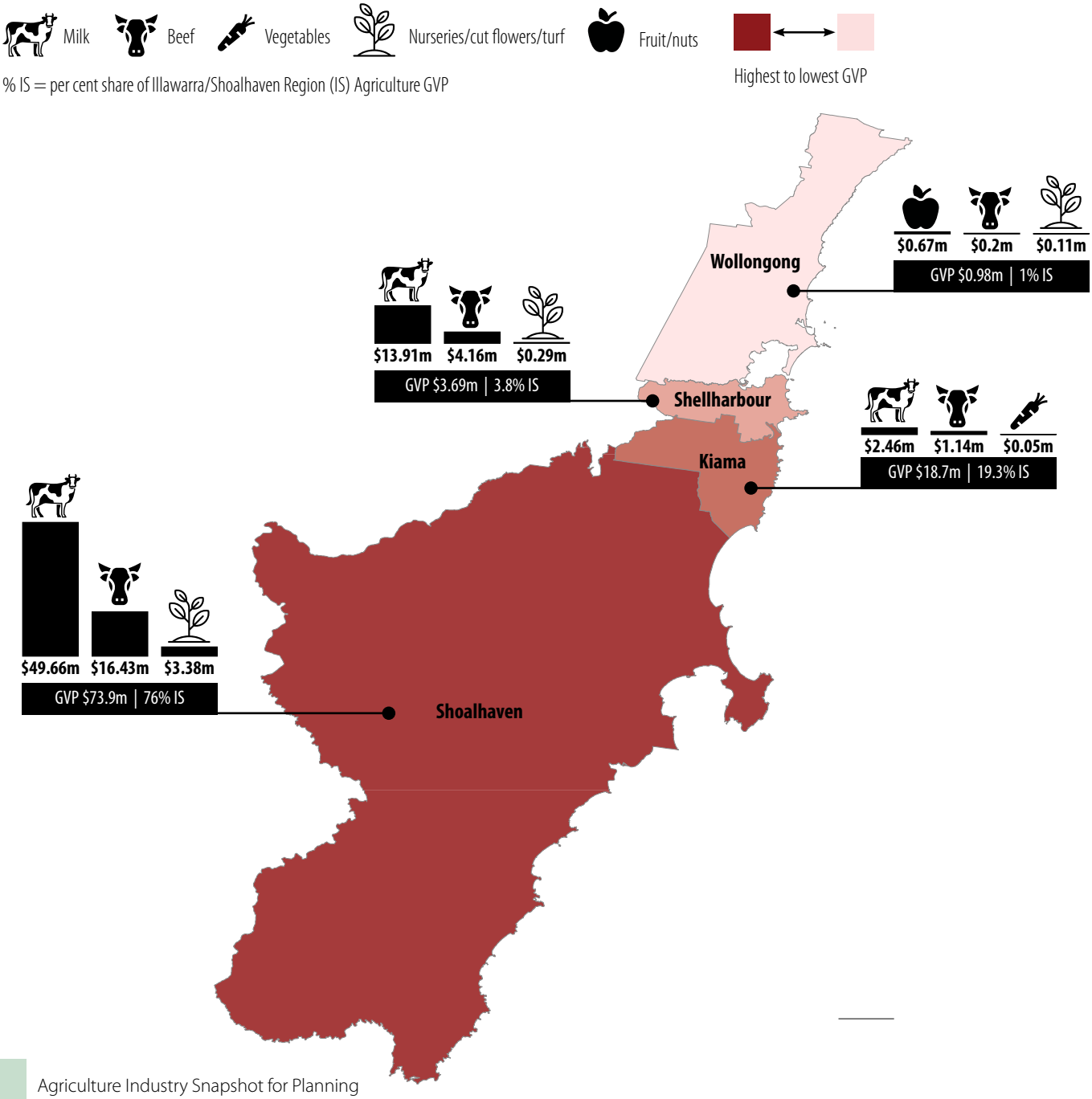
Employment

Agriculture employs over 1,031 people across the Illawarra/Shoalhaven (ABS, 2015/16). The biggest contributor is the dairy industry (34.1%) followed by sheep, beef cattle and grain farming (28.1%) and nursery and flora production (11.1%).

The LGAs with the highest employment in agriculture are Shoalhaven (57.7%) and Wollongong (16.8%). These are people directly linked to the primary production of agriculture and don't include the vast employment within the key secondary industries. The timing of the ABS census also misses peak seasonal production employment periods for some industries such as vegetables and fruit. These are people employed in the primary production of agriculture and do not include the vast workforce within the key secondary industries. It does not include employees that are hired on a seasonal basis that were not working in the Illawarra Shoalhaven Region at the time of the ABS census.

Local government distribution

The following figure shows the LGAs in the Illawarra Shoalhaven. Notably, the Shoalhaven LGA provided the greatest GVP at $79.2m or 76% of the Illawarra Shoalhaven.



Agricultural highlights of the Illawarra Shoalhaven Region

Farming in coastal areas such as the Illawarra Shoalhaven Region provides benefits and opportunities for farmers and urban populations. By sustaining agriculture close to cities (the peri-urban area), there are a range of 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 the Illawarra Shoalhaven Region, with further detail provided in Appendix 1.

Dairy industry

The dairy industry is increasingly more competitive with farm incomes under pressure from milk pricing competition, increasing input costs and slowing productivity growth in recent times. Dairy farmers in the Illawarra have responded by consolidating farms through reducing farm numbers and increasing milk output. Illawarra production has increased despite declining farm and herd numbers, showing the increased efficiency of milk production in this region. Farmers are also now selling steers to small local feedlots or growing them out on farm to enhance farm income.

The region has ties to Dairy Farmers Milk Co-operative, which is now owned by Lions Dairy and Drinks, with the closest large scale dairy processing facility in Penrith. A small milk processing co-operative, South Coast Dairy at Berry processes and bottles fresh milk into the local market from local farmers. The dairy has a processing plant in Berry, with separation, pasteurisation, homogenisation and bottling/bagging capacity providing a niche product.

Industry requirements

The dairy industry is moving towards a more intensive system of production, with efficiencies in establishing 'dairy pads' as well as the more traditional fodder-based dairies. Dairy farmers also have a range of industry and government standards for primary production, traceability, food safety, transport and processing. Because of the intensive nature, fodder and dairy pad-based enterprises need access to farmland with appropriate separation from non-agricultural land uses. Land that is suitable to fodder production, with quality soils and reliable rainfall is traditional dairy land. Farmland in the region has been in demand for rural lifestyle development which is incompatible with dairy. The industry therefore needs policy support through land use planning to manage potential land use conflict from incompatible land uses.

The transport network is important for importing supplies and labour to the region. The Hume Highway provides a major transport route to the surrounding regions and the major cities of Sydney, Canberra and Melbourne. The rail network between Sydney and Albury provides an important link for feed as there are grain and support sidings at Galong, Cunningbar and Harden.

Beef

Beef farming over the last 15 years has had a lower relative performance when compared with alternative enterprises over the long term. In the region, beef farming is undertaken on a smaller scale that other regions across NSW due to the smaller size of properties. It operates as part of a mixed farming system with cropping or hay production, enabling feed to be stored on farm for drier periods or sold. Some dairy farmers who have exited the industry graze cattle for beef production.

Industry requirements

As with dairying, livestock production requires unconstrained land with opportunity for producers to increase scale without risk of land use conflict. Pasture-based beef cattle production needs access to suitable land and water supply, and a range of infrastructure for livestock handling, husbandry, fodder production, storage and access. Typically livestock are managed in a system of rotational grazing, with paddocks recuperating after grazing. Some producers may operate more intensive lot feeding on farm, which will increase the amount of stock, feed and transport movements. As with all farmers, producers need to manage plant and animal pests with a variety of methods.

The region is serviced by cattle sale yards at Moss Vale (Southern Regional Livestock Exchange (SRLX)) and Moruya which combined had approximately 50,000 head (approx. 3% of the state total) of cattle pass through the yards in 2018/19. The SRLX is a relatively large single exchange serving a broad area in the Southern Highlands region. An abattoir is located at Moruya.

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 mostly in Shoalhaven LGA. The strong growth of greenfield urban development in the Wollongong and Shellharbour areas 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. The industry does require specialist potting mix suppliers, and suppliers of pots and associated equipment, which are readily transportable and available.

Hay and broadacre crops

Hay and other broadacre production is undertaken as part of a mixed farming system and is opportunistic in nature. Wheat, oats and maize grown in the Shoalhaven LGA provide feed for dairy cattle in the region. Lucerne, pasture and cereal hay grown in the Shoalhaven LGA provide feed for cattle and Lucerne hay for the equine industry. Pasture hay harvested in the other local government areas is also used locally. This industry is small and is constrained by the available flat land of sufficient size to grow and harvest grain and hay.

There are limited facilities for crop and hay production as a small agricultural industry as it is an opportunistic industry with on farm and local consumption in the dairy, beef or horse industry. It is worth noting, however, that the Manildra group have a large starch and gluten processing plant in conjunction with an ethanol distillery, based in Bomaderry, which sources wheat grain from the inland regions of the NSW wheat belt. Wheat is moved to the plant via the Illawarra South Coast rail line.

Industry requirements

Unconstrained, arable, flat land with access to irrigation are the ideal requirements for pasture and fodder cropping. This land use is often located on floodplains or riparian land. The industry has operating hours that can extend into night and as such, separation from non-agricultural land uses is important. Transport infrastructure and markets are readily available.

Illawarra Shoalhaven regional 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 region's main agricultural industry is milk production and although small scale, there is 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.

The region is known for its growing range of specialised agricultural produce from smaller properties in the region (see opportunities section) and a ready population (Wollongong and Sydney) to purchase local produce. Produce is sold on farm, through farmers markets or packaged to be sold by retail outlets locally. The region is well supported by marketing and advertising services and processing facilities or packaging products to enable small scale packaging of goods.

The Illawarra Regional Airport south of Wollongong is being expanded to include a new business park, offering potential for tourism and freight of agricultural produce from the region. Further to this, the Western Sydney Airport and Badgerys Creek Aerotropolis in Penrith and Liverpool LGAs approximately 50km to the north will enable the transformation of local agricultural and value adding opportunities.

Climate

The Illawarra Shoalhaven Region is part of the broader South East NSW biophysical region. The region's temperate climate combined with the arable, fertile soils and reliable water sources supports highly productive pasture and fodder crop growth. The Bureau of Meteorology characterises the Illawarra Shoalhaven Region climate zone as warm temperate with warm summers and cold winters, with an average annual daily maximum temperature between 21-24^{0}C. The region has summer dominant rainfall with average rainfall across the region ranging from 1,000-1,600mm. This high rainfall provides the necessary growth for good dairying pastures key to the Illawarra Shoalhaven Region.

In the past 30 years, annual rainfall has decreased by 8%, particularly in autumn and spring. Spring rainfall has been more reliable than autumn and there have been more hot days, with more consecutive days over 35^{0}C.

The region has summer dominant rainfall. In terms of rainfall reliability for the years 1989 to 2018, rainfall has been moderately reliable, in contrast to autumn and winter rainfall. Rainfall has decreased in late summer and autumn by 7%, with variability increasing over this time.

Temperature has increased over the years from 1989 to 2018, and the number of days over 35^{0}C also increased. Consecutive days above 35^{0}C have been more frequent in the past 30 years.

Soils

Soils in the Illawarra Shoalhaven Region are invariably acidic due to high rainfall, having leached the more mobile elements and compounds. Notwithstanding this, there is considerable complexity of soil types and distribution over the region, attributed to the type of rocks on which soils have weathered. Soil landscapes include the Hawkesbury and Nowra sandstone plateaux, skeletal soils of the Illawarra Escarpment and Gorges, shales and siltstones of the hill country supporting coal, deep volcanic soils in the Kiama and Gerringong districts, floodplain alluviums and sandy soils on coastal sediments.

Agricultural land use in the region almost completely avoids the sandstone, skeletal and coastal sands; concentrating on the fertile basalt derived soils and alluvial coastal lowlands (Young, R.W).

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 inherent difficulties with coexistence with urban sprawl (Brinkley, C., 2012).

Agriculture also plays a positive role in providing open space amenity landscapes as well as food security. These benefits are available in Illawarra Shoalhaven Region with the reciprocal advantages for producers of a ready market, access to supply chain and value adding.

It has been suggested that strategic planning needs to consider food production capacity as an essential component in urban planning to create a more resilient urban food system. Ways to achieve this are through ensuring adequate space is available in peri-urban areas to localise food production. This in practice means planners need to ensure that agricultural land is preserved for production through unambiguous policy and support for non-policy initiatives such as education, networking and local marketing of produce.

Challenges for Agriculture in the Illawarra Shoalhaven Region

Agricultural land is a finite resource, particularly in the Illawarra Shoalhaven 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 above challenges 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 etc., 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 to source land and services 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.

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 minimising 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 minimise 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.

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 and a greater loss to the region.

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.

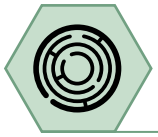
Land fragmentation

Rural land for agriculture (Primary Production -RU1, Rural landscape - RU2 and Rural Small Holdings -RU4 zones) make up only approximately 18% of the Illawarra/Shoalhaven Region.

Rural land in the region is characterised by a highly fragmented land use pattern. Analysis of rural land in the Illawarra Shoalhaven found that:

- 40% is comprised of less than 5 hectares in size
- 36% is between 5 and 20 hectares
- 15% is between 20 and 40 hectares
- 8% is between 40 and 100 hectares
- 1% is greater than 100 hectares in size.

As noted, where there is a high degree of land fragmentation, adverse impacts on agriculture can occur. Small rural lot sizes result in increased land prices as competition from non-agricultural land uses arise. Small lots also limit the ability of new agricultural enterprises to achieve required buffer distances or expand their operations. The desire to expand 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.



Other challenges

Climate change

Projections for climate change in Illawarra Shoalhaven Region 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. These risks will have impacts for agricultural activities in the region, where producers will need to invest in methods and infrastructure to mitigate high temperatures and conserve water.

Biosecurity

Rural land in the region is exposed to pests and diseases that could threaten agriculture, the environment and community safety. Biosecurity hazards are managed by the NSW Government through the South East Region Local Land Services.

The existing level of land fragmentation and resulting small lot sizes in the region means it may be more difficult for an agricultural producer to control the activities occurring within the necessary biosecurity buffer.

Social license

A social license 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 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 the Illawarra Shoalhaven and planning levers

Agriculture is beneficial for urban areas on many levels: providing food security, ecosystem services, scenic values, value-adding 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 the Illawarra Shoalhaven 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 region are intensive operations such as dairy. Improvements in technology and reductions in capital costs mean that intensification is an increasingly viable and necessary option for 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.

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 to the north in Liverpool and Penrith LGAs will complement the existing agricultural operations in the Illawarra Shoalhaven through the development of an 'agri-port' to provide for the large scale movement and storage of agricultural commodities.

Planning solutions

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, heavy industrial and recreational activities etc

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

Recognition of the importance of the need for fresh food to be available locally for the health of the community is a key opportunity for agriculture in the region. 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). Metro food security is becoming more vulnerable due to a range of other issues such as global pressures, land use pressures, competing stakeholder perspectives and a lack of policy response (Sydney Food Futures, 2020).

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 at Badgerys Creek. The increasing population of Sydney, expected to grow by a further 60% by 2050, and the projected population increase for the Illawarra Shoalhaven Region will increase demand for food and fibre for local consumption. In combination these factors will lead to a higher value of agricultural production in peri-urban areas.

Planning levers to increase food security

a. 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.

b. Councils should zone agricultural land for primary production and only permit agriculture and a narrow range of supporting land uses in that zone.

c. Some forms of horticulture may be a suitable permissible use in a range of zones, with opportunities for associated agri-tourism and roadside stalls.

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.

Non-Planning levers to increase food security

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

Diversification and value-adding

Proximity to growing metropolitan areas of Wollongong and Sydney and biophysical assets of coastlines, escarpments and productive farm landscapes means that the Illawarra Shoalhaven Region is well positioned to capitalise on growing community interest in food provenance and agri-tourism.

Value-adding agricultural produce and farm gate sales provide the opportunity to increase or augment the income generated from agricultural production. There are a number of 'niche' enterprises including mushrooms, aquaculture, organic beef, intensive horticulture (herbs, vegetables, fruit), poultry (eggs), olives, berries, vineyards, apiary (bees) and wine grapes.

There is small scale value-added manufacturing and processing of cheese, preserves, gelato, bakery items, organic and free-range production methods, packaging of fresh fruits, vegetables and meats, and dairy products.

There are also established farmers markets in the region that provide an outlet for agricultural retail sales.

Agri-tourism in the form of low-key farm stays and bed and breakfast establishments can provide an alternative income stream of 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.

The region provides an opportunity to promote NSW's 'clean and green' production to the world through the high levels of tourism by the region. The development of the agribusiness precinct in the Western Sydney Aerotropolis and Illawarra Regional Airport will assist in promoting this level of agri-tourism internationally for the benefit of agriculture across the state. Identifying and protecting agricultural infrastructure preserves the region's fresh produce sectors and potential to keep growing.

Planning levers for diversification and value adding

a. Farmers markets ('markets' as defined by the Standard Instrument LEP) should be permissible and encouraged by councils in appropriate urban and open space zones.

b. Agri-tourism (farm stays, bed and breakfast accommodation) should be associated with and complement the continued agricultural production on the land.

c. Agri-tourism should be directed away from intensive agricultural operations or precincts.

Non-planning levers for diversification and value adding

d. Intensive agricultural production precincts and businesses may be used for education of the community and tourists around how food supply chains work.

e. 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.

f. Farmers markets could prioritise locally grown or made produce to support local growers.

Peri-urban farming, amenity, promotion and education

The region is uniquely positioned to provide promotion and education opportunities for the broader agricultural industry. On a local scale agriculture in the region 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. 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.

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.

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 solutions to facilitate circular economies

a. Primary production zones should permit resource recovery facilities 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. In the region an 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.

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 (LSPS)

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 Illawarra Shoalhaven Regional Plan sets out the framework and expectations for preparation of local land use strategies in the Illawarra Shoalhaven. 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)

The standard instrument local environmental plan allows councils the flexibility to 'tailor' some provisions, such as in the structure of land use tables and minimum lot sizes for a dwelling. In summary the following specific considerations concerning agricultural land in the LEP are:

Land use zones: where strategically recommended, typically the RU1 Primary production or RU4 Primary Production Small Lots zones are applied. This will most probably apply to land which is currently used for agriculture and/or is suited to future agricultural land uses.

Land use tables: The use of specific zones for agricultural land allows the zone objectives to be specific to agricultural land uses and enables permissible land uses to be limited to those that are compatible with agriculture.

Limiting permissible land uses: LEPs can reduce the potential for land use conflict by limiting the number of land uses which 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 productive and potentially high quality 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

A development control plan (DCP) 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.
- Consider special planning controls for specific agricultural precincts which restrict land fragmentation and prohibits 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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Dairy

Dairy is the highest contributor to the Region's GVP valued at $66m, accounting for 11% of the total milk production in NSW and 68% share of the total GVP for the Illawarra Shoalhaven Region. The Shoalhaven LGA is the highest producer in the Illawarra Shoalhaven Region at $49.6m. Approximately 8% of milk produced in NSW is produced in the Shoalhaven LGA, showing the importance of that Shire in the dairy industry. There are 85 dairies in the region with a total number of 33,452 dairy cows.

Distribution of milk producers by local government area

The main milk producing local government areas in the Illawarra Shoalhaven Region are:

LGA	Gross Value of Production ($)	% share of IS dairy	% share of NSW
Shellharbour	$2.4m	4%	0%
Kiama	$13.9m	21%	2%
Shoalhaven	$49.6m	75%	8%
TOTAL	**$66m**		**11%**

Trends

In the six year period from 2010 to 2016 the dairy industry in the Illawarra Region (excluding Shoalhaven) has experienced the following trends:

- decrease in the number of businesses from approximately 109 to 85, a decrease of 24 businesses
- decline in the number of dairy cattle from 35,443 to 33,452, a decrease of 1,991 cows
- increase in the value of milk production from $53.3m to $66m, an increase of $12.7m.

Lower farmgate milk prices over five years to 2017/18 coincided with a period of high global production levels. Drought was largely responsible for a decline in production in 2017/18.

The number of dairy farms in the region has declined significantly over the last 30 years, largely due to urbanisation, particularly in the northern LGAs of Wollongong and Shellharbour where dairy farms have been transformed into suburbs. As well the region has followed long term industry trends of declining farm numbers. There has however been an increase in the value of milk reflecting more efficient dairying operations in response to increased competition.

Locational requirements

The region's temperate climate combined with the arable, fertile soils and reliable water sources supports highly productive pasture and fodder crop growth. Dairy farms in the region have the following requirements:

- fertile soils suitable for fodder production
- reliable water sources (cleaning dairy equipment, yards, for irrigation and livestock water)
- adjoining lands for infrastructure and dry cattle
- ready access to milk transport and markets (Sydney, Canberra, Wollongong)
- a reliable electricity supply (dairy machinery and irrigation equipment).

Good roads, bridges and access to towns (daily delivery of milk to the market, fodder supplements from grain/hay suppliers and feed mills in the central west of NSW) (NSW Trade and Investment, 2014).

Challenges

The trends in milk production in the Illawarra/Shoalhaven region indicate that urbanisation in the northern LGA areas and 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 dairy industry. This is because land suited for the dairy industry is also well suited to suburban development and a range of other enterprises and is or could be potentially used for other agricultural purposes such as beef cattle or horses.

State-wide dairy industry pressures include:

- high potential urban capital value of dairy land near to the city of Wollongong. The production value of milk from dairy land cannot compete with the potential urban value of the land. This encourages farmers to sell their dairy farms for higher value and discourages farmers from entering into dairying in this area.
- the increasing cost of fuel and power (affecting irrigation and transport cost, milking operations and feed costs)
- high capital costs to enter the industry due to the infrastructure required and cost of building a quality herd
- the rationalisation of milk processing capacity and the lack of processing capacity for surplus milk
- supermarket pricing policies that restrict market access and farm milk prices
- urban and rural residential (lifestyle) developments that inflate the price of suitable dairy lands and increase the risk of land use conflicts.

Opportunities

The dairy industry appears to have a great opportunity to grow and thrive through the growing domestic market and continuing global demand for dairy. The growing middle class in China, India and Asia in general will generate further demand for dairy products from Australia.

The opportunity to grow dairy lies in the food and beverage industry with the increased consumption of snack food as well as the demand for protein rich foods. There is also a potential to establish specialty milk processing and marketing such as the Berry cooperative, comprising local farmers (South Coast Dairy). The co-operative established to bring fresh milk into the local market has a processing and bottling plant in Berry with separation, pasteurisation, homogenisation and bottling/bagging capacity. Additional product lines are being investigated, such as flavoured milk, artisan butters and other boutique manufactured dairy products.

Local dairy farmers continue to improve their environmental and economic sustainability and are well placed to adapt to a changing climate and carbon restricted economy. Dairy farming is an innovative industry that is open to new ideas and opportunities. The region has excellent extension services that can help local farmers to remain efficient and adapt to future climate variations.

Planning Considerations

Specific resource requirements dictate the location of dairy farms. Economies of scale are critical to dairy farms remaining competitive, managing environmental impacts (including nutrient re-use); and minimising land use conflicts (such as odour, noise and visibility). Dairy farming is a long-term investment (at least 25 years) due to the high levels of on-farm capital investment, low unit prices and reliance on economies of scale. Hence, compatible development of surrounding lands is critical. Critical industry mass is also needed to ensure milk pick up and access to specialist support services (such as refrigeration maintenance). Isolated, smaller properties find it increasingly difficult to secure milk contracts. Landuse planning can support sustainable dairy development by:

- avoiding dairy lands and critical processing infrastructure, such as the Berry co-operative, in locating residential development, urban centres and industrial lands
- allocating land use zones and planning surrounding lands to minimise land use conflict risk. This includes strategic planning for residential and rural lifestyle developments in locations that do not comprise lands highly suitable for dairying
- allocating an appropriate minimum lot size and land use zones for important dairy land that provides areas for:
    - adequate buffer distances to other houses and urban development
    - the management of environmental impacts
    - efficient operations and adaptation to market pressures, including economies of scale.

Beef

Beef production is the second highest contributor to the Region GVP valued at $21.9m, accounting for 23% of total agriculture in the Illawarra/Shoalhaven Region and 0.8% of NSW production. Shoalhaven LGA is the highest producer in the Region at $16.4m. There are 169 cattle farms in the region with a total of 42,955 head of cattle.

Distribution of beef producers by local government area

The main milk producing local government areas in the Illawarra Shoalhaven Region are:

LGA	Gross Value of Production ($)	% share of IS beef
Wollongong	$0.2m	1%
Shellharbour	$1.1m	5%
Kiama	$4.2m	19%
Shoalhaven	$16.4m	75%
TOTAL	**$21.9m**	

Trends

Trend analysis over seven years from 2010/11 to 2016/17 (ABS) for the beef cattle industry in the South East and Tablelands Region:

- a decrease in the number of businesses from 453 to 169, a decrease of 284 businesses
- a decrease in the number of cattle from 58,691 to 42,955, an decrease of 15,736 cows
- The value of cattle production remained the same at $25m.

An increase in lot feeding steers sourced from dairy farms to grow out for sale is a trend in recent years. Another trend is cattle grazing on former dairy farms where dairies have closed.

Locational requirements

The region benefits from a moist temperate climate with long warm summers and cool winters and an average annual rainfall of around 1,400mm that promotes good pasture growth. While it is not a large beef producing area, it tends to be a more opportunistic enterprise. The large number of small holdings can easily run cattle with minimal outlays on infrastructure, although there are larger properties running cattle. Cattle are either grown out or sold to the domestic supermarket trade or bred and sold as weaners to other areas for fattening with some sold to feedlots within 16 to 24 months. There is an increasing interest in calf feedlots in the area with calves sourced from dairy farmers to be grown out and sold as weaners.

Challenges

Beef production on the south coast is mostly small scale, compared to other regions in NSW. This presents challenges in terms of economies of scale, however the pasture growth and high rainfall makes this region well suited to this form of agriculture.

Opportunities

The region provides yearling steers to go west for finishing and lot feeding. Some farms finish locally but the trend for lot feeding yearlings is increasing. Beef cattle are a relatively low input enterprise requiring less labour and infrastructure to produce than sheep and can be produced on a range of property sizes.

Planning considerations

Strategically important infrastructure such as the Moruya abattoir is a key advantage for the cattle industry as well as being a regional community asset. To ensure its continued operation, separation from residential development is critical to reduce the risk of land use conflict due to traffic movements, noise, dust, odour etc.

Similarly, maintaining separation distances between residential development and major transport routes and other farming infrastructure such as silos, processing facilities, cattle yards etc will minimise the potential land use conflict and provide support for the industry.

Landuse planning can support sustainable beef production by:

- Planning appropriate land uses around value adding infrastructure, such as the Moruya Abattoir and Moruya saleyards to minimise risks of land use conflict.
- Strategically planning residential and rural lifestyle developments in locations that do not compromise rural lands suitable for beef production or feedlots.
- Adopting appropriate minimum lot sizes for rural zones that allow for:
    - adequate buffer distances to other development
    - the management of environmental impacts
    - efficient operations and opportunity for expansion
    - adaptation to market pressures.

Nurseries, cut flowers and cultivated turf

Nurseries, cut flowers and turf together are the fourth highest contributor to the I&S region's GVP valued at $4.6m, accounting for 5% of total agriculture in the Region (2015/16). Shoalhaven LGA is the highest producer in the region contributing $3.4m. There are 13 nursery, cut flower and turf businesses in the region with a total area of 77ha.

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

The main nurseries, cut flowers and turf producing local government areas in the Illawarra Shoalhaven Region are:

LGA	Gross Value of Production ($)	% share of IS nurseries, cut flowers and cultivated turf	% share of NSW
Wollongong	$0.1m	2%	0%
Shellharbour	$0.8	19%	0%
Kiama	$0.3	6%	0%
Shoalhaven	$3.4m	73%	1%
TOTAL	**$3.7m**		

Trends

In the seven year period from 2010 to 2016 the nursery, cut flower and turf industry in the region experienced the following trends:

- a decrease in land being used for nurseries, cut flowers and turf from 135ha to 77ha, a decrease of 58ha
- a decrease in the number of businesses from approximately 37 to 13, a decrease of 24 businesses
- a decrease in the value of nurseries, cut flowers and turf from $6.7m to $4.6m, a decrease of $2.1m.

Locational requirements

Soils

Turf is generally cultivated along the alluvial flats of rivers where productive soils and large areas of flat land are conducive to growth and harvesting.

Outdoor nurseries

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. The Illawarra is suited to the nursery industry due to its mild climate and plentiful rainfall.

Transport

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

Water supply

The Illawarra has a good water supply due to regular rainfall events (1,400mm annual average). Turf is generally cultivated along the alluvial flats of rivers where productive soils and large areas of flat land are conducive to growth and harvesting.

Site characteristics

Nurseries have established on properties with little to no slope to minimise cut and fill requirements.

Secondary Industries

The nursery-turf-cut flower industry in the Illawarra and Shoalhaven Region relies on many of the similar secondary industries as the other agricultural industries in the region. The nursery industry does however require specialist suppliers of potting mix, pots and associated equipment which is conveniently accessible.

Challenges

Increased urbanisation

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

Land use conflict

One of the major threats to the continued operation of nursery-turf-cut flower enterprises in the Illawarra region is land use conflicts 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 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 markets

The nursery/turf/cut flower industry in the Illawarra region is well situated being close to the Wollongong City markets. The good transport links in the region enable products to be transported quickly to markets. There are opportunities to develop similar industries in the area to take advantage of these links as well as the development of a 'Harvest Trail' to encourage city residents to visit a farm and purchase fresh produce.

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.

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. There is a trend in other regions of 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 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 these nursery operations.

Planning considerations

Aside from urbanisation, land use conflict and competing land uses, the prevalence of turf farms in the Illawarra on flood prone land is a consideration 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.

Hay

Hay is the fourth highest value agricultural industry in the region contributing $2.4m in 2015/16. The region's hay industry accounted for 2% of total agriculture produced. Shoalhaven LGA had the highest proportion of hay production for the Illawarra Shoalhaven Region ($2.2m), other LGAs produce very small amounts of hay.

Distribution of hay by local government area

The main local government areas in the Illawarra Shoalhaven Region which produce hay are:

LGA	Gross Value of Production ($)	% share of IS hay	% share of NSW
Wollongong	$0.0005m	0%	0%
Shellharbour	$0.03m	1%	0%
Kiama	$0.2m	7%	0%
Shoalhaven	$2.2m	91%	1%
TOTAL	**$2.4m**		

Trends

In the seven year period from 2010 to 2016 the hay industry in the region experienced the following trends:

- a decrease in the area of land being cropped from 3,314ha to 2,067ha, a decrease of 1,247ha
- an increase in the number of tonnes produced from 12,961t to 14,846t, an increase of 1,885t
- a decrease in the number of businesses from approximately 113 to 19, a decrease of 94 businesses
- a decrease in the value of hay from $3.4m to $2.3m, a decrease of $2.1m.

Hay production is usually undertaken as part of a mixed livestock farm production system, and like cropping, is opportunistic in nature. The region has a nett import of hay to meet its needs locally. In good years the amount of hay required to be imported is reduced.

Locational requirements

Areas of flat land in the region with fertile soils are used for hay production. The region has the advantage of warmer temperatures and good rainfall (over 1,200mm annual average). The flatter land enables access to machinery for sowing, direct drilling, fertilising and harvesting.

Lucerne, pasture and cereal hay is harvested in the Shoalhaven LGA, with some pasture hay produced by the other three LGAs. Hay is used locally by the dairy industry, with some lucerne production being sold to the equine industry.

Challenges

A threat to hay production is the fragmentation of land and associated high land prices, which limits expansion and adjustment opportunities for farmers in the mixed farming business. Water supply reliability is also an ongoing threat due to competition from climate change and any natural variability in rainfall. Other threats include:

- fertiliser costs and declining soil fertility (and increasing soil acidity)
- the shortage of skilled labour (due to the competition with mining)
- fuel prices and transport costs raising input costs.

Opportunities

The industry is highly adaptable for varying climatic and market conditions. It has the ability to switch between hay varieties and mixed farming with livestock. The transport links that access good arterial roads is significant for hay inputs. There is also established local market that will continue to demand the produce. The local and regional demand for food and stock feed combined with a farming system that is adaptable to climate and market conditions, will enable the region to continue to provide for the local market.

Planning considerations

The hay and mixed farming industry depends on the ability to provide sufficiently large tracts of land to support this industry. There is also the requirement to provide for machinery and infrastructure and enable economies of scale to be achieved. Land use planning can assist by:

- including planning provisions that will reduce or avoid conflicts between farmers undertaking hay production activities (i.e. ploughing, spraying, fertilising etc) and neighbours, particularly from rural lifestyle properties
- planning provisions within any LEP will need to ensure that the lands highly suitable for hay production cropping is not fragmented into small lifestyle farms.

Broadacre cropping

Cropping is the fifth highest contributor to the region's GVP valued at $1.3m, accounting for 1.3% of total agriculture. Shoalhaven LGA produces almost 100% of all broad acre cropping. Cropping is mostly important in the Shoalhaven LGA, with farmers undertaking opportunistic cropping for local sale and feed for stock. A mixed enterprise of cropping and grazing occurs, where cropping is secondary to cattle production.

Distribution of crop producers by local government area

Nearly 100% of the $1.3m Illawarra/Shoalhaven broadacre cropping industry is located in the Shoalhaven LGA.

Locational requirements

Areas of flat land in the region with fertile soils are used for cropping. The region has the advantage of warmer temperatures and good rainfall (1,400mm annual average). The flatter land enables access to machinery for sowing, direct drilling, fertilising and harvesting. Wheat, oats and maize are grown for grain with some canola for oilseed.

Challenges

A major threat to cropping is the fragmentation of land and associated high land prices, which limits expansion and adjustment of cropping properties. Water supply reliability is also an ongoing threat due to climate change and rainfall variability. Other threats include:

- fertiliser costs and declining soil fertility (and increasing soil acidity)
- the shortage of skilled labour (due to the competition with mining)
- rising fuel prices and transport costs
- lack of grain storage due to the declining rail network

Opportunities

The industry is highly adaptable to varying climatic and market conditions, able to switch between crop varieties and mixed farming with livestock. Mixed farming with cattle is the predominant type of farming system in the region. Transport links that access arterial roads are significant to the industry. The local and regional demand for food and stock feed combined with a farming system that is adaptable to climate and market conditions, will enable the region to continue to provide grain for the local market.

Planning considerations

Cropping and mixed farming depends on large tracts of undeveloped land and separation distance from non-agricultural development. Land needs to be in holdings large enough to support crop rotation, infrastructure and enable the economies of scale to be achieved. Land use planning can assist by:

- including planning provisions that will reduce or avoid conflicts between farmers undertaking cropping activities (i.e. ploughing, spraying, fertilising etc) and neighbours, particularly from rural lifestyle properties
- planning provisions within any LEP will need to ensure that the lands highly suitable for cropping is not fragmented into small lifestyle farms.

Acknowledgments:

Information for this profile was sourced from publicly available statistical and spatial data. This is supported by industry intelligence from NSW DPI staff and industry reports. Compiled by the NSW DPI Agricultural Landuse Planning Team. Special acknowledgement to Elton Consulting for editing and Epiphany-PR for graphic design. The Snapshot will be reviewed once updated ABS data on an LGA level is publicly available.

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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