NSW GOVERNMENT | Department of Primary Industries

Agriculture Industry Snapshot for Planning

Mid North Coast Sub Region

August 2020

The value of agricultural production in the Mid North Coast Sub Region (MNC) was over $239m (ABS 2015/16). A key area of importance for the State's agricultural industry, despite being only 1.83% of NSW's land area. However, the expansion of residential and lifestyle development has incrementally pushed farming out of some areas making it difficult for remaining producers to operate. Farmers and value-adding industries must deal with increased land use conflict, inflated land prices plus potentially lengthy and costly planning requirements due to competing interests and urban land uses. Despite these challenges, the Sub Region has potential to grow and support particularly intensive agriculture, which is important given expected population growth of the region and proximity to Sydney, Newcastle and South East Queensland.

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 Mid North Coast Sub Region 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 can be protected and supported in planning instruments.

It is important for the Mid North Coast Sub Region to retain agricultural production in a local setting. The benefits for both farmers and urbanising populations are evident through reduced food miles and provenance, and amenity, research and tourism opportunities.

The region's agricultural industries operate in an environment of increasingly global competition and opportunities, external challenges and changing land use. This profile will inform local council's strategic planning for these key agricultural industries considering their linkages to infrastructure and secondary industries throughout the region. Land use planning is guided by the North Coast Regional Plan 2036 (2017). The Regional Plan has clear directions for the need to identify, protect and appropriately capitalise on the region's agricultural industries, infrastructure and rural land.

Agriculture in the Mid North Coast Sub Region

Agriculture is a key industry for the Mid North Coast Sub Region both economically and for the scenic and environmental qualities attributed to the rural lands on which agriculture is undertaken. The Mid North Coast Sub Region is richly diverse in agricultural commodities and highly innovative in the processing and development of food and beverage products. The area is particularly important for horticultural activities, beef and dairy farming. The Sub Region possesses climatic, marketing and cluster advantages for high value agriculture.

The Mid North Coast Sub Region is 11,323.5 km^2 in area and includes the Local Government Areas of Coffs Harbour, Bellingen, Nambucca, Kempsey and Port Macquarie-Hastings and is home to approximately 308,372 people (ABS, 2016).

The Sub Region makes 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 Mid North Coast Sub Region for each of the top industries. These industries alone account for 97.9% of all agriculture in the Sub Region.

Industry	Gross Value of Production ($)	% share of MNC total	Number of businesses	% share of NSW
Fruit & nuts	$115.2m	48.2%	212	18.8%
Beef	$51.1m	21.4%	465	2%
Milk	$48.4m	20.3%	86	8.1%
Nurseries, cut flowers or cultivated turf	$11.5m	4.8%	42	3.8%
Vegetables	$7.8m	3.3%	82	2.8%
All other agriculture	$5m			1.2%
Total	**$239m**		**798**	

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

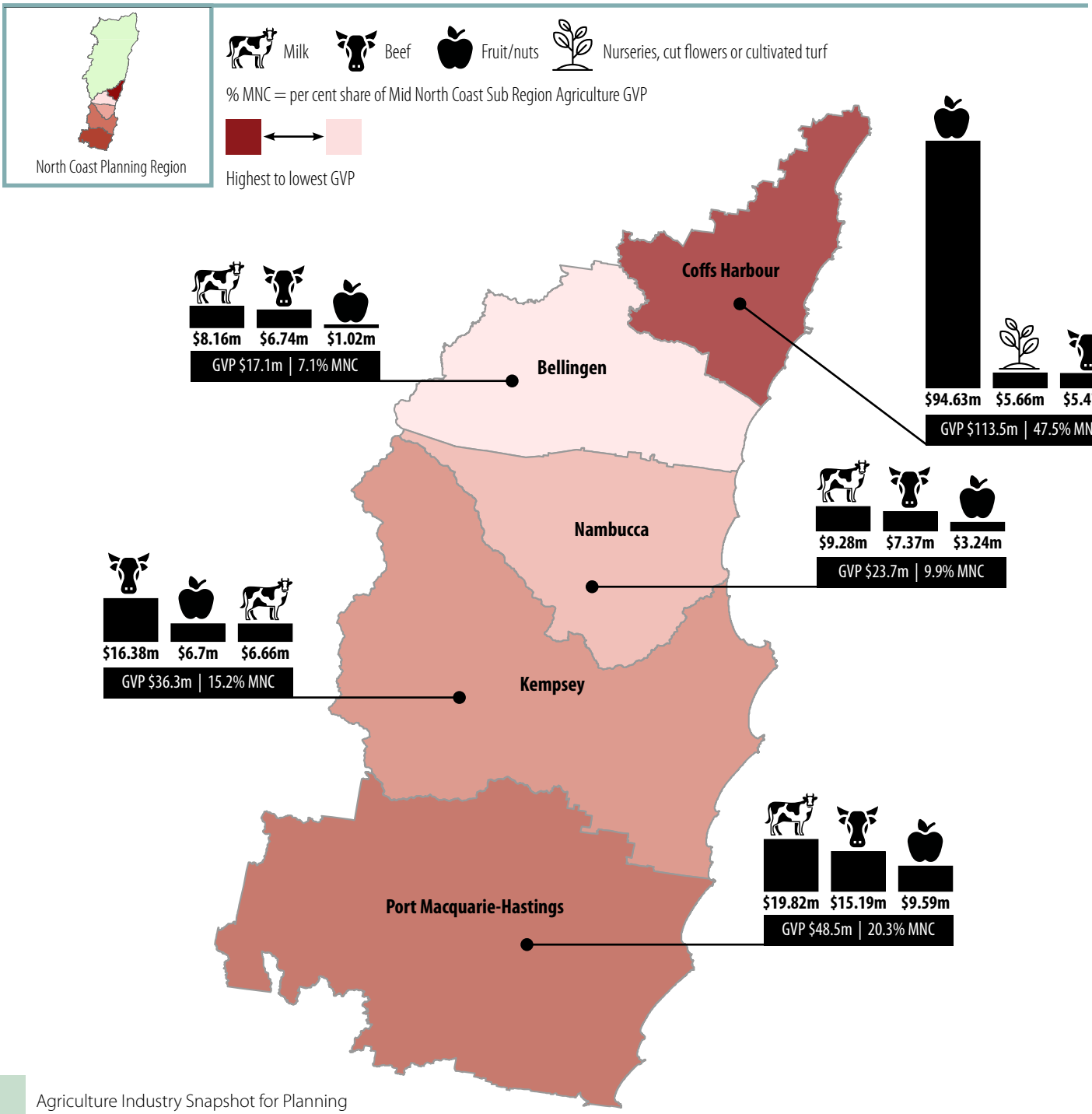
Fruit and nut production systems are the dominant industries in terms of GVP, contributing $115.2m of which blueberries contributed $90m (ABS 2015/16), or 76.8% of NSW's blueberries. The Mid North Coast Sub Region produced 57.2% of NSW's bananas and 42.4% of NSW's avocadoes. The Mid North Coast Sub Region also produced 7.7% of the state's cut flowers and 8.1% of NSW's milk.

Employment

Agriculture employs over 2,872 people across the Mid North Coast Sub Region (ABS, 2015/16). The biggest employer is fruit and nut industries (37.9%) followed by cattle and grain farming (28.5%) and dairying (10.4%). The LGAs with the highest agriculture employment are Coffs Harbour (42.2%) and Port Macquarie-Hastings (19.3%) 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 Mid North Coast Sub Region at the time of the ABS census.

Local government distribution

The following map shows the Local Government Areas in the region and agricultural GVP of the three leading industries for each. The biggest individual contribution is Coffs Harbour with $113m followed by Port Macquarie-Hastings Council which contributed $48.5m.



Agricultural highlights of the Mid North Coast Region

Farming in the Mid North Coast Sub Region provides benefits and opportunities for producers and urban populations. By sustaining agriculture close to large regional cities (the peri-urban area), there are farming advantages for farmers ranging from opportunities with market differentiation and alternative income streams, access to labour, resources and materials, and opportunities to grow high value crops which benefit from market proximity (reduced food miles and spoilage).

Agriculture is one of the leading export industries within the Mid North Coast Sub Region. A number of key agricultural industries are identified as 'engines of growth' within the Regional Economic Development Strategies (REDS) that cover the local government areas of this Sub Region.

This section highlights the prominent industries for the Mid North Coast Sub Region, with further detail provided in Appendix 1.

Fruit and nuts

The mild climate, relatively high rainfall and access to markets also provides ideal conditions for crops that aren't overly dependent upon soil type, e.g. berries, hence lesser quality lands are also highly productive and important to agriculture in the region. Blueberries are the fastest growing Australian horticultural export, with NSW accounting for more than 90% of production, with over 80% in the wider North Coast region, mainly located in the Coffs Harbour LGA. Blueberry production has increased significantly over the past decade, driven by consumer demand for fresh fruit, new varieties, technical advances and opportunities for export markets. Plantings have expanded to new areas to take advantage of a late and early season picking with the aim of increasing supply year-round (RDA n.d.). Blueberries need a deep, well-drained acidic soil, high in organic matter and require irrigation throughout the growing season. Growers tend to protect crops from birds and adverse weather conditions with netting or tunnels, which also has raised concerns over visual impacts from residents in peri-urban areas.

Category	Key industry	GVP	MNC % share of NSW	North Coast % share of NSW
Fruit & nuts (excluding grapes)	Blueberries	$90m	76.8%	82.2%
	Avocadoes	$15.2m	42.4%	66.7%
	Bananas	$3.6m	57.2%	100%
	Macadamias	$5.4m	6.2%	99.1%

Blueberries are labour intensive, requiring hand-picking, in turn generating seasonal labour opportunities locally. The OzGroup Co-operative is a 100% Australian farmer-owned processor of berries and berry products. The cooperative currently has 160 members growing blueberries across the Coffs Coast. The cooperative operates a purpose-built packing facility in Woolgoolga and a larger packing facility in Coffs Harbour employing over 30 permanent employees and hundreds of seasonal workers each year. The co-op introduced raspberries and blackberries to its farming and distribution in 2016 (OzGroup 2020).

In the 2017/18 financial year, Oz Group became the biggest blueberry supplier in Australia, producing 37 million punnets of blueberries, 1.1 million punnets of raspberries, and 202 thousand punnets of blackberries (OzGroup 2020).

"The co-operative has grown from $80m in 2017 to $130m in 2018. The economic return to the region is well over a billion dollars" (The Land 2019).

Costa at Corindi grow blueberries, raspberries and blackberries and harvest for 52 weeks of the year. The Costa Berry Category is at the forefront of genetic growing and innovation and export to some of the most demanding markets in the world. They are a major employer with more than 6,000 workers across their growing regions during peak season. Costa also have a close relationship with a number of universities across Australia and offer an extensive formal and informal graduate program and a range of university scholarships.

Bennings packing facility is based in Woolgoolga and supplies fresh blueberries to local, interstate and international markets. The packing facility is supplied by six farms, with a total land size of 2,800 acres, producing approx. 750,000 trays per annum. The company employs over 200 local residents and 200 backpackers during harvest (Bennings Blueberries 2020).

Pacific Blue packing facility is a packing and warehouse facility at Woolgoolga specialising in blueberries and cucumbers. The facility opened in 2016.

Industry requirements

The blueberry 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 key inputs for the blueberry industry are:

- well drained, fertile, deep soils on slopes less than 15%
- can be grown in pots and in controlled environments
- a temperate frost-free climate without excessive temperatures and winds
- access to transport and processing industries
- access to workforce
- ability to expand operations and include buffers.

Beef

The beef industry is a major contributor to agricultural production in the Mid North Coast Sub Region. The gross value of production of beef in the Mid North Coast Sub Region was $51.1m in 2015/16 accounting for 2% of NSW production (ABS 2015/16).

In recent times, beef prices have increased along with global demand for protein. On the coast, dairy farmers who have exited the industry graze cattle for beef production.

Saleyards are located throughout the Mid North Coast Sub Region, at Wauchope, Dorrigo, Macksville and Kempsey, to provide opportunities for livestock exchange across the region. Sales support herd development and are important to the generation of income for producers.

The below table provides a summary of sale transactions for 2016/17 and 2017/18 from the Meat and Livestock Association (MLA) 2017/18 Saleyard Survey.

Please note the relevant disclaimers to the referenced survey, as well as 2017/18 also reflecting a decline in sales due to the widespread drought.

Saleyard	2016/17	2017/18	2018/19	% of state	% Change
Dorrigo	9,563	5,401	7,685	0.5%	42.3%
Macksville	10,344	8,829	11,949	0.7%	35.3%
Kempsey	37,757	32,546	33,202	2.0%	2.0%
Wauchope	8,848	6,652	8,437	0.5%	26.8%

Source: (MLA, 2019)

Industry requirements

Livestock production requires unconstrained land with opportunity for producers to increase scale without risk of land use conflict. Pasture-based 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 manage plant and animal pests with a variety of methods.

The key inputs for the beef industry are:

- feed, mainly rain-fed pasture and/or seasonal supplementary grain/hay
- road access for feed and livestock transport
- reliable water supply
- access to labour
- access to processing facilities and saleyards
- ability to expand or intensify operations to increase scale without interruption from non-farming residents.

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 Mid North Coast Sub Region have responded by consolidating farms through increasing farm size and milk output.

The Norco milk factory at Raleigh, near Bellingen is dedicated to producing dairy based products including Norco branded milk, cream and custard. The factory produces 41 million litres of bottled milk every year (RDA 2020) and was exporting between 35,000 - 40,000 litres of fresh milk to China per week in 2016 (ABC, 2016). Currently, 66 dairy farms supply milk to Norco's Raleigh factory. These farms are spread across the Mid North Coast Sub Region, from Taree and Gloucester up to Coffs Harbour (RDA, 2020).

Industry requirements

The dairy industry is moving towards a more intensive system of production, with efficiencies in establishing 'dairy pads' as well as more traditional fodder-based enterprises. 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 for fodder production, with quality soils and reliable rainfall is traditional dairy land, most often located in coastal areas. Dairy pads do not necessarily have fodder growing requirements and can therefore locate away from traditional dairy localities.

Farmland in the region is also 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 NSW North Coast region is highly susceptible to flooding hence infrastructure planning is an important consideration for the industry to ensure milk can continue to be delivered during times of flood.

Vegetables

The vegetable industry produces $7.8m worth of GVP for the MNC. Tomatoes alone represent 34% ($2.6m) of this (ABS, 2015/16).

Greenleaf Farm at Clybucca (Kempsey LGA) is a large scale intensive horticulture operation with over 600 greenhouses in vegetable production.

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.

Nurseries/cut flowers/turf

The nursery industry is an important industry for the Mid North Coast Sub Region worth $11.5m in GVP when combined with cut flowers and turf (ABS 2015/16). The category represents 19.9% of NSW GVP with cut flowers totalling 7.7% of NSW production. The industry is critical to the region's commercial horticultural industry as well as providing a viable product in cut flowers.

Industry requirements

The nursery industry in the Mid North Coast Sub Region relies on many similar secondary industries to other agricultural industries in the region. The industries does however require specialist potting mix suppliers and a supplier of pots and associated equipment.

Mid North Coast Sub Regional assets for agriculture

These regional advantages coupled with local innovation and adaptation, access to Brisbane and Sydney markets, and regional infrastructure, are contributing to the diversity and growth of agriculture and value adding agribusinesses in the area.

Supporting industries and infrastructure

The Mid North Coast Sub Region also supports a broad range of related businesses such as agricultural suppliers, specialist irrigation and electrical services, food processing, retail, transport, logistics and warehousing. The key secondary industries include milk processors, packing sheds and saleyards. The region has considerable advantages for agriculture given the proximity to markets, existing freight networks and infrastructure, and a highly innovative and skilled workforce. The unfettered access to infrastructure and supporting industries is critical to the ongoing production of food and fibre from agriculture.

The Mid North Coast Sub Region's agricultural industries have a comprehensive and diverse supply of support services and infrastructure. The interactions of these agricultural industries with their secondary industries is a critical consideration in planning for agricultural land uses.

Climate

The Mid North Coast Sub Region has a mild, sub-tropical climate with rainfall averages of up to 1,700mm a year. The area experiences warm humid summers and mild winters with much of the rainfall generally falling in summer and autumn. The Sub Region's climate combined with biophysical assets such as water and soils support a diverse agricultural industry with regional specialisations in horticulture and milk production. It will be increasingly important to protect land and resources that support agriculture in the region to enable sustained production of specialised agriculture enterprises against the future risks of climate change.

The NSW North Coast is regularly impacted by natural disasters, particularly storms and floods. It is therefore important to maintain critical mass across the region to enable continued supplies of specialised agricultural commodities in the event of localised natural hazards such as flood, fire and storms. It is increasingly important to protect the land and resources that support agriculture to enable sustained production against the risks of climate change.

Soils

The unique and inherent biophysical assets of the Mid North Coast Sub Region are well recognised. The Sub Region is characterised by escarpment ranges with steep foothills and narrow ridges, undulating hinterland and plateaus, coastal alluvial flood plains, lakes and estuaries. The rich, volcanic and alluvial soils provide for a highly diverse agricultural industry.

The need to protect the region's biophysical assets for current and future agricultural production has been a long-term initiative of the NSW Government.

The Mid North Coast Farmland Protection Project 2008 identified those farmlands with the highest quality biophysical attributes for food production. Provisions are included within the planning system to protect this land from urban and rural residential encroachment. These provisions will be updated to enable consistency with the Northern Rivers farmland mapping.

Locational advantage

Rising interest in Australian agriculture is linked to awareness of food production systems, reducing 'food miles' and buying locally, as well as demand for fresh (seasonality) and high nutritional quality of food consumed ('clean and green'). It is also recognised that agricultural land provides ecosystem services, food security and other benefits for urbanising communities that warrant its support and preservation through planning instruments, despite inherent difficulties with coexistence with urban sprawl (Brinkley, C, 2012). The Mid North Coast Sub Region has reciprocal advantages for producers providing these services with markets, export potential, access to supply chain and value adding.

The Mid North Coast Sub Region has climatic, marketing and cluster advantages for high value agriculture. These advantages coupled with local innovation and adaptation, access to Brisbane and Sydney markets, and infrastructure, contribute to the diversity and growth of agriculture and value adding agribusinesses in the area. The region is effectively positioned between the Brisbane markets and Port of Brisbane, Port of Newcastle and the Sydney markets. The proximity to South East Queensland and Newcastle/Sydney enables accessibility to extensive restaurant, café and other markets as well as interstate visitors for existing and future agri-tourism and value add enterprises.

Challenges for agriculture in the Mid North Coast Sub Region and planning solutions

Agricultural land is a finite resource, particularly in the Mid North Coast Sub Region where decades of fragmentation has adversely displaced dairies, horticulture, orchards and intensive livestock farming.

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

Historic land use planning

Historic 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 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 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 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 near 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.

The expansion of agricultural industries such as blueberries into rural residential areas has also resulted in an increase in land use conflict within peri-urban areas of the Mid North Coast.

Planning solution

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

With land use conflict being largely driven by the divergence in knowledge, expectations and activities of rural neighbours, particularly between new residents and traditional rural landholders, collaboration and networking becomes critically important to addressing changing social landscapes (Askland et al). State and local government can help to facilitate this education process.

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.

The Mid North Coast is a popular retirement and 'sea change' lifestyle area. An analysis of rural areas within Coffs Harbour undertaken as part of the development of the Coffs Local Growth Management Strategy found that the largest proportion of rural land use in the Coffs Harbour region relates to 'rural living' (72%) (CHCC 2018). As migration to 'sea-change' areas and subsequent land development pressure increases, existing buffers between horticultural enterprises and residential properties are eroded. This often leads to heightened tensions between those living in rural areas for amenity and lifestyle and those undertaking commercial agricultural practices (Cosby & Howard 2019).

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 zoned land for agriculture (Primary Production -RU1, Rural landscape - RU2 and Rural Small Holdings -RU4 zones) make up only approximately 47% of the Mid North Coast Sub Region. Rural land in the region is characterised by a highly fragmented land use pattern. Analysis of rural land in the Region found that:

- 31% is comprised of less than 5 hectares in size
- 35% is between 5 and 20 hectares
- 16% is between 20 and 40 hectares
- 14% is between 40 and 100 hectares
- 4% is greater than 100 hectares in size.

As noted, adverse impacts on agriculture can occur where there is a high degree of land fragmentation. Undersized rural lot sizes result in increased land prices as competition from non-agricultural land uses arise. 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.

Critical mass

All agricultural industries have a critical level of production which ensures the economic viability of the enterprise. Where secondary industries rely on a minimum volume of agricultural product to remain viable it is imperative for the industry in that region to maintain that critical mass for the benefit of all agricultural industries. This is important for the agricultural industries as well as the related supply chain, including ancillary services, infrastructure, markets, processing facilities and related industries. An example from the Mid North Coast Sub Region is the dairy industry, where substantial investment in processing infrastructure may be compromised by exiting producers due to a combination of factors including urban encroachment.

Planning solution

When land use planning decisions have the potential to affect one aspect of the agricultural supply chain it has the potential to threaten the entire industry in a region. Land use planning needs to recognise that it is not only agricultural land with excellent biophysical characteristics that needs to be retained for agricultural purposes, but also those key secondary supporting industries which may be located on lower quality agricultural land which are still potentially impacted by encroaching non-agricultural land uses.

Other challenges

Climate change

Across the region, rainfall is projected to increase in autumn and spring by 2030. Winter rainfall is projected to decrease by 2030 across the region. Seasonal shifts in rainfall can impact agricultural productivity as well as natural ecosystems.

The number of cold nights is projected to decrease with climate change. However, dry winter and spring seasons result in more cold nights across the region.

The Mid North Coast is expected to experience an increase in all temperature variables (average, maximum and minimum) by 2030. Summer temperatures are projected to increase by 0.7^{0}C in 2030 and 2.4^{0}C by 2070. Minimum temperatures are projected to increase by 0.7^{0}C by 2030 and 2.5^{0}C by 2070. Changes in cold nights are important in the maintenance of natural ecosystems and agricultural/horticultural industries.

The number of hot days is projected to increase by another three days by 2030 and seven by 2070; with increases most pronounced in spring and summer. Minimum temperatures are projected to increase across the region with the least increase away from the coast. Prolonged periods of hot days increase the incidence of illness and death amongst vulnerable people and adversely affect ecosystems.

Severe fire weather is projected to increase in the region by 2030 mainly in summer and spring (NSW Office of Environment and Heritage, 2014). These changes will have implications for animal and plant agricultural systems, particularly temperature increases.

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 North Coast Local Land Services. The combination of urban areas, forested areas and intensive agriculture results in serious pests such as foxes, wild dogs, pigs, deer, cats, rabbits and goats. Numerous pest plant species are already in the landscape and have a large impact on remnant vegetation and rural land.

The existing level of land fragmentation and resulting small lot sizes in the Mid North Coast Sub Region 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 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 Mid North Coast Sub Region and planning levers

Agriculture is beneficial for communities 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 practical landuse planning approaches and opportunities for agriculture in the region and some planning considerations 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.

Most commercially viable agricultural operations in the region are intensive operations such as dairy and horticulture. Improvements in technology and reductions in capital costs mean that intensification is viable. Some intensive agricultural operations can more closely resemble manufacturing processes as they occur in expansive sheds where climatic conditions are controlled and impacts from noise and odour mitigated.

Intensive agricultural operations usually need to establish infrastructure such as sheds, greenhouses, netting or 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.

Fruit and nut production is the highest value agricultural product in the region, followed by beef production. Expansion of dairy and more intensive vegetable production is feasible in the region. 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).

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, 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

The 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 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). There is a marketing opportunity for food producers to leverage the benefits of local food production to differentiate their product in the market. The population of Newcastle and Sydney is expected to grow by a further 60% by 2050, and the projected population increase for the Mid North Coast Sub Region will increase and sustain demand for food and fibre. 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

Access to Sydney, Newcastle and South East Queensland and biophysical assets of coastlines, hinterland, mountains, rainfall, volcanic soils and productive farming development means that the Mid North Coast Sub 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. 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 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.

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, 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. Small scale 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 levers 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 intensive livestock (beef or poultry) manure/litter as a fertiliser substrate for cropping or horticulture use.

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 parts of the planning system to facilitate this.

Strategic planning

Local strategic planning statement

A local strategic planning statement (SLPS) 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 land use strategy

The North Coast Regional Plan 2036 sets out the framework and expectations for preparation of local land use strategies in the Region. The agricultural component of a land use strategy should identify the agricultural industries in the LGA, land on which they are located and the essential infrastructure and secondary industries. A land use strategy is also an effective tool in communicating to the community the scale and importance of agriculture in the LGA economically, physically and socially. It is an important step in identifying where agricultural land should be protected from incompatible land uses.

A rural land use strategy will identify the linkages primary industries have with secondary industries, infrastructure and other components of the production chain to establish a holistic picture of relationships and dependencies. The strategy will also 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 non-strategic residential development.

Local environmental plan

A local environmental plan (LEP) allows councils to tailor planning controls to address the issues facing agricultural industries in their LGAs. The 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. The RU2 Rural Landscape zones may contain lesser quality lands but are also an important feature for some agricultural industries.

Land use zone objectives and tables: The use of specific zones for agricultural land allows the zone objectives to be specific for 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 restricting the range of permissible land uses where incompatible with agriculture. This is executed by careful construction of land use tables for the rural 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. Land use tables for rural zones should be 'closed' to enable more control over the range of specific land uses.

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 the locally 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. While it can often be difficult to execute, the breaking of the nexus between minimum lot size and dwellings is a way to prevent new settlement on rural land, and a positive advance in promoting agriculture and preventing future rural land use conflict.

Development control plans and other approaches

Development control plans

A development control plan (DCP) for rural zones should include 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 cases Councils may need to apply both planning approaches and non-planning advocacy to achieve positive outcomes for agriculture. For example, under the current legislative framework, Councils can:

- Seek a locality mapped as state significant agricultural land with restrictions on fragmentation and development for non-agricultural purposes.
- 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.
- Propose a highly contested area as a special planning precinct with planning provisions to protect from 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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Fruit and nuts

Distribution of fruit and nut producers by local government area

LGA	Gross Value of Production ($)	% share of MNC fruit and nuts	% share of NSW
Bellingen (A)	$1m	0.90%	0.20%
Coffs Harbour (C)	$94.6m	82.20%	15.40%
Kempsey (A)	$6.7m	5.80%	1.10%
Nambucca (A)	$3.2m	2.80%	0.50%
Port Macquarie-Hastings (A)	$9.6m	8.30%	1.60%
Total	**$115.2m**		

Blueberries

Blueberry production started in Australia in the 1970's however it wasn't until the mid-1980s that consumer demand began to grow. This demand has continued as consumer awareness of the taste and health characteristics of blueberries has increased. Blueberries are considered the fastest emerging fresh produce category globally. In 2017, the industry generated approximately $250 million in revenue equating to approximately $1 billion in economic activity (based on a standard economic multiplier of 3.4) (ABGA n.d.) and approximately 5,500 workers were employed in the industry (RDA n.d).

NSW accounts for more than 90% of Australia's blueberry production with over 80% of NSW production occurring within the wider North Coast Region. This recent growth has been driven by domestic consumer demand for fresh blueberries, new varieties, technical advances and opportunities for export markets. Plantings have expanded to new areas to take advantage of a late and early season picking with the aim of increasing supply to year-round (RDA n.d.).

The majority of blueberry production has traditionally been located in Coffs Harbour LGA however as the availability of suitable land has reduced, land use conflict has risen, and new varieties have become available, blueberry production has expanded to other LGAs in the NSW North Coast. In 2015/16, the blueberry industry in the Mid North Coast Sub Region generated $90m GVP (ABS 2015-16). $89.7m of this was from Coffs Harbour LGA.

Locational requirements

Blueberry varieties require differing amounts of chill hours for normal flower and fruit development. Generally, this is the cumulative number of hours below 7.5°C in autumn and winter (DPI 2006). Blueberries are ideally suited to the Mid North Coast Sub Region given warm and humid summers, however due to early flowering of blueberries in the region, it is important to avoid frost prone areas.

Blueberries prefer a deep, well-drained acidic soil, high in organic matter. Blueberries will grow on a variety of soils and acidity and drainage are important factors. For this reason, blueberries are generally grown on mounds or in pots where these factors can be controlled. Planting on gentle slopes with a north to north-easterly aspect is preferable to enable access to more sunlight hours, support drainage requirements and reduce frost potential.

Blueberry plants have a shallow, fibrous root system and as such require supplementary irrigation throughout the growing season. Water storage facilities of 2–3 megalitres per hectare are required for blueberry production. Blueberries are sensitive to saline water, so water quality is also a consideration. Peak water demands occur during the periods of fruit set and fruit growth. Another critical period is February and March when floral initiation for the following season's crop occurs (DPI 2006). Fertigation is used by growers to supply nutrients to plants via the irrigation system.

Growers have increasingly moved to protective tunnels or netting to protect blueberry crops from adverse weather conditions and birds, while simultaneously, allowing for improved productivity and consistency of fruit quality. Visual amenity impacts related to these structures has caused significant tensions between growers and other residents in and around peri-urban areas which provides locational advantages to areas further away from urban and rural-residential properties.

The bulk of the industry harvests fruit in Australia for the domestic market. Manual harvesting is therefore essential to ensure a high-quality fresh fruit product. The harvest can last up to 10 months per year, with peaks at particular times hence access to a high labour force is critical for the industry. Likewise, close proximity to packaging sheds is important to reduce transport times and subsequent fruit spoilage.

Approximately 356 tonnes of blueberries were exported from Australia in 2016/17 (Australian Horticulture Handbook 2017). 47% of this fruit was sent to Hong Kong and the remainder to markets including Singapore, Thailand, Malaysia, Indonesia, Middle East, Canada and India. Suppliers located close to airports that are enabled for freight, have a greater opportunity to access export markets.

Secondary industries

The blueberry industry is supported by packing facilities in Coffs Harbour and Woolgoolga and a number of ancillary industries such as machinery and irrigation equipment suppliers, mechanics, and rural supply stores.

Challenges

The Australian Blueberry Growers Association (ABGA) identified the following challenges within the industry's strategic plan 2018-22:

- Increased production particularly in August, September and October may threaten current profitable blueberry prices.
- Consumer trust in the product erodes with experiences of inconsistent quality.
- Threat of biosecurity incursion.
- Well-resourced overseas competitors, with the ability to compete in export markets on the basis of lower price e.g. South America.
- Industry environmental practices (or perceptions of) come under public scrutiny.
- More frequent and more damaging climatic events due to climate change.
- High cost of production.
- Increasing labour costs and lack of availability of labour.
- Variable quality of product reducing consumer penetration.

Land use planning challenges associated with the industry relate predominantly to land use conflict (industry environmental practices and community education around lawful agricultural practices), appropriate siting of blueberry farms, encroachment of urban and rural residential development, seasonal worker accommodation, water availability and security, adequate infrastructure and telecommunications, and biosecurity.

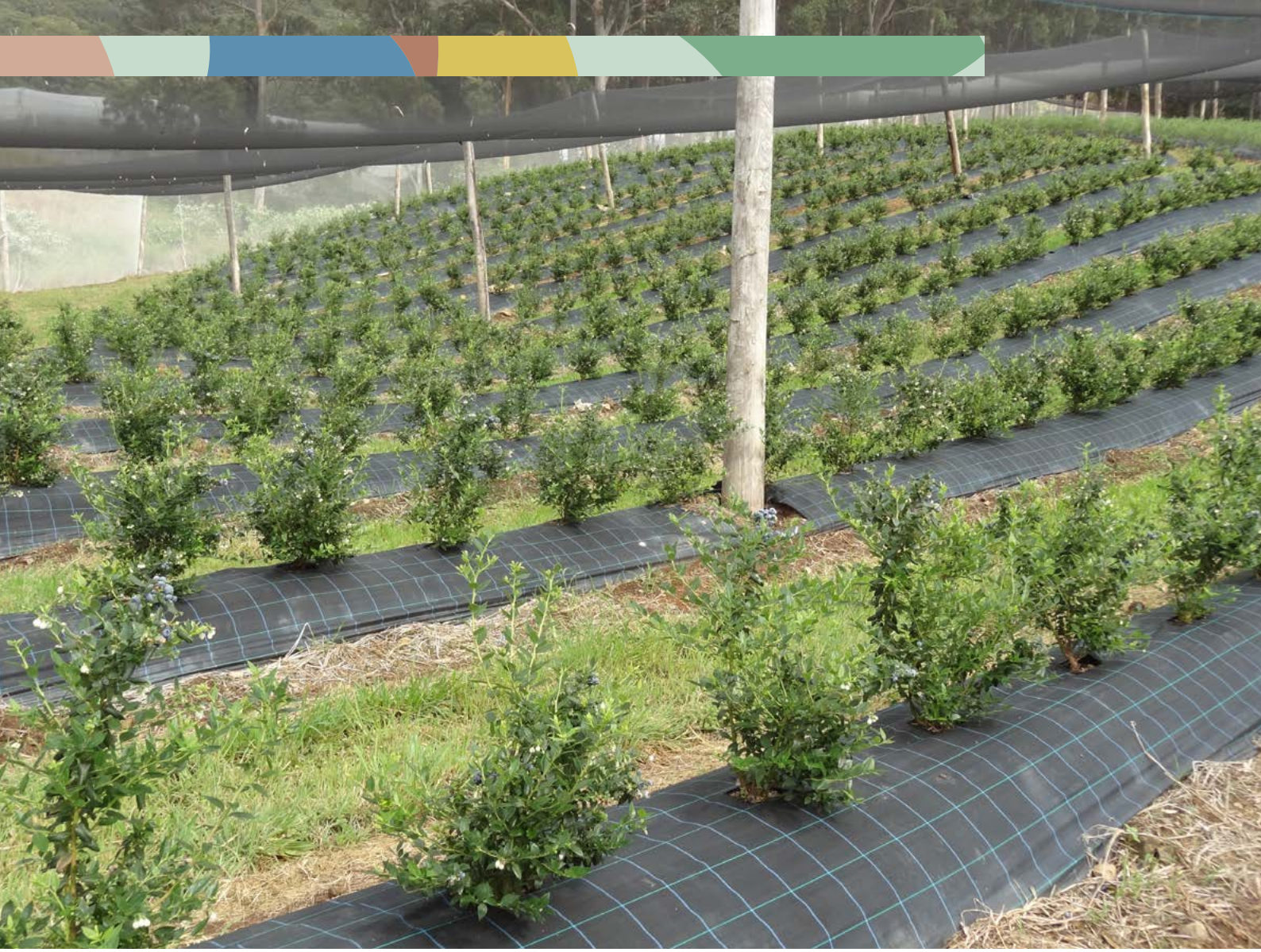
Competing land uses

The Draft Coffs Harbour Local Strategic Planning Statement recently exhibited stated that 'the most prominent issue identified in Chapter 5 Rural Lands of Council's Local Growth Management Strategy relates to the suitability of rural land use activities and the potential for land use conflict with residents who use their land for rural living and rural lifestyles.

Education plays a significant role in improving communication between rural landowners in understanding 'Right To Farm' principles, providing opportunities for awareness of different land uses, recognising the mutual rights land owners have to enjoyment of their land, and maintaining connected rural communities' (CHCC 2020). Equally the draft LSPS indicated the need for industry bodies to be a leader in sustainable agriculture and land management best practice to reduce environmental impacts and land use conflict.

The challenge facing Coffs Harbour LGA is not uncommon across the North Coast Sub Region however is intensified within the peri-urban areas.

It is important that the NSW government supports local councils in strategic planning that avoids fragmentation of important farmland and provides support to industries in ensuring best management practices are undertaken. Education and improving communication between rural landowners is a shared responsibility to reduce land use conflict risk.



Labour

Blueberries are a manually picked fruit that requires a large workforce throughout the growing season. This is particularly important for the establishment of larger farms. In some cases, when a new farm comes into production this can mean there is a need to accommodate 600 to 700 workers from the start of the first harvest (RDA n.d.).

Rural worker accommodation is an issue. Worker accommodation will continue to be an issue within the region as intensive plant agriculture increases and labour demand remains high.

Water security

Given the water requirements for blueberries, water security and reliability can be a problem particular with uncertainty around licensing and competition for water from other industries. It is important that water use and water quality considerations are taken into account when planning for a blueberry operation.

Road infrastructure

Overall the industry is well served in the region for major arterial roads through the continued upgrades to the Pacific Highway. Infrastructure that is closer to actual growing properties may requires further consideration, e.g. the need to consider load capacities for bridge replacements and rural road upgrades (RDA n.d.).

Biosecurity

Maintaining Australia's biosecurity defences is critical to the long-term prosperity of the blueberry industry. An incursion of pests would be catastrophic to the industry. The Australian Blueberry Growers association is currently funding research on treatment options for Fruit fly. Major export growers have been evaluating the adoption of fumigation techniques that could satisfy export authorities.

Opportunities

The Australian Blueberry Growers Association (ABGA) identified a range of opportunities within the industry's strategic plan 2018-22:

- increase in supply provides capacity to meet demand in counter seasonal export markets
- growing recognition by consumers of the positive health attributes of blueberries
- consumer demand for consistent quality fruit, including look, colour and taste
- move towards integrated pest management and reduced inputs for production
- availability of technology to improve productivity at all stages of value chain
- increasing consumer demand for safe, clean food
- establishment of a stronger national representation and communication.

Bananas

Highlights

Bananas are one of the world's most popular fruit. Australians consume over five million bananas every day (ABGC 2020). In 2016/17, Australian banana growers sold a record 414,000 tonnes of fresh bananas with a farm gate value of $679m. This was estimated to have delivered $1.3 billion to the economy with 18,000 full-time and part-time jobs (including supply chain) in Australia (Pinnacle Agribusiness, 2018).

The first major commercial banana plantations in Australia were established on the NSW North Coast in the 1890s. Coffs Harbour and Northern Rivers areas were the main growing regions for Australia up until the late 1900s when production increased in North Queensland. Higher production costs of growing in steeper terrain and the inability to compete against larger farms in North Queensland forced many growers out of the industry. In the 1980s NSW produced 85% of Australia's total crop however by 2017/18 the NSW banana industry accounted for only 4% of the national industry. Despite this decline, the region remains increasingly important to continual national supply given climate change and biosecurity considerations with increased frequency of natural hazards and diseases in other regions.

Banana production in the Mid North Coast Sub Region contributed $3.6m GVP to the economy in 2015/16 and 57.2% of NSW's banana production through its growing areas predominantly in the Coffs LGA (ABS). A land use mapping project in 2017 identified 507 banana plots across 344 properties and 1,453ha within NSW. 140 properties were identified within the Mid North Coast covering 632ha (OEH 2017). Further to the areas currently growing bananas in NSW, OEH has identified an additional 162 areas where it is likely that bananas were grown on commercial scale since 2000 (OEH 2017).

The Cavendish banana accounts for 97% of production.

Trends

Over the past 15 years, there has been a gradual decline in the area of bananas grown in NSW. In Coffs Harbour this decline is due to diversification into other crops such as blueberries, sale of properties, urbanisation or owner retirement. During this period there has been a trend towards more local sales such as roadside stalls and farmers' markets rather than through central markets, however several local ripeners/distributors sell fruit to supermarket chains in the Coffs Harbour (Port Macquarie to Grafton), Ballina/Lismore and Tweed districts. Fruit is also sold into the central markets in Brisbane and Sydney (Weinert, M. 2017).

Difficult seasonal conditions and low returns have impacted the banana industry in the Mid North Coast in recent years. Costs of production and lack of competitiveness with North Queensland continues to see more growers leave the industry each year.

Locational requirements

Bananas grow best in fertile soils, frost-free sites, sheltered from strong winds with safe all-weather access, erosion control and drainage. Growth is very limited below 13°C and chlorophyll is damaged below 6°C. The ideal range for soil pH is 5.5 to 6.5. The soil should also be of reasonable depth to allow development of strong root systems. Bananas grow much more consistently where not water stressed.

Avoiding the introduction of Panama disease (caused by the fungus *Fusarium oxysporum f. sp. cubense*) is important to all banana growers.

'NSW provides a geographical spread of production for the Australian industry, as the major Australian production areas in north Queensland are vulnerable to extreme weather events, which can create major supply issues. It is important that the NSW industry remains a viable alternate supply region and better coordination at a local level is the key to this' (Weinert, M. 2017).

Secondary industries

The industry is reliant on several ancillary industries that are also utilised by other agricultural enterprises. The industries relate to machinery and irrigation equipment suppliers, mechanics, and rural supply stores.

Challenges

Biosecurity

Panama disease is a major threat to remaining banana growers in the Mid North Coast. The movement of soil and plant material is an important consideration within the region.

Climate change

Weather events such as east coast lows, hail storms, severe winds and drought can pose a significant challenge for growers in the region. Learnings from preparedness and recovery efforts in north Queensland could assist the NSW industry. Growers with access to irrigation supplies could also value from resources and training to optimise their systems (Weinert, M 2017).

Input costs

Input costs were also identified as a production constraint. These are fertilisers, pest and disease management chemicals including herbicides and props (Weinert, M. 2017).

Ag land loss

Many growers have left the banana industry in pursuit of higher value crops such as blueberries. This combined with the loss of land to other land uses has highly impacted the industry. The Coffs Bypass project will also have a significant impact on banana production through the direct loss of agricultural land and the increased risk of Panama disease spread.

Opportunities

NSW bananas are well known for their excellent taste and eating qualities and are sought after by certain market sectors, especially high quality, excellent tasting Lady Fingers. Niche marketing opportunities, renewed interest by the chain stores in sourcing local fruit for a growing population along the NSW north coast and a core of young progressive growers in the industry provide a sound basis for the industry's future. This means:

- Encouraging young growers into the industry and building links between these young growers within NSW and across the Australian industry.
- New plantings, of current or improved varieties that fit established supply chains to improve supply as well as niche varieties.
- •Developing and delivering information packages to improve fruit quality' (Weinert, M. 2017).

Macadamias

Opportunities

Export

Countries seeking high protein meat alternatives such as India provide opportunities for further export.

Floodplain development

Further research into macadamia production on floodplains is providing greater information on managing production issues and also identifying added environmental benefits to alternative land uses. Further expansion opportunities could continue to occur within the floodplains of the NSW North Coast.

New growing systems

Research is looking into ways of making trees more compact but still as efficient. Dwarf rootstocks, varieties and cultural practices will be key to this.

Avocados

Highlights

NSW contributes 14% of Australia's avocado production. The Mid North Coast Sub Region contributes 24.3% of the state's gross value of avocado production at $8.7m. The industry is highly important to the local economies of Port Macquarie-Hastings and Kempsey in particular. "Hass is the main avocado variety and is produced almost all year round. In 2018/19 Hass represented 81% of production. Shepard, which is harvested in Queensland through late Summer and Autumn, made up 16% of production, and at that time of year, is the dominant Australian variety on the market" (Avocados Australia 2019).

Trends

"Australia produced just over 85,546 tonnes of avocados in 2018/19, which was 11% more than the previous year. Australian production is forecast to increase strongly over the next few years, with at least 115,000 tonnes per annum expected to be produced by 2025" (Avocados Australia 2019).

Locational requirements

The main requirement for avocado production is to ensure the soil is free draining and of good depth—preferably over two metres but at least 1m — to avoid waterlogging and mitigate infection by root rot pathogens. Soil mounding can be used to improve soil depth and drainage.

Most avocados are sold to wholesale markets in the capital cities, however some larger growers sell directly to major supermarkets or alternatively sell to packers or agents who consolidate produce from a number of growers to ensure consistent supply to a supermarket. Smaller growers may sell at farmers markets or at roadside stalls.

Secondary industries

The industry is reliant on a number of ancillary industries. Nurseries are important to the supply of trees for growers. Other industries that provide support to or are supported by the avocado industry relate to machinery and irrigation equipment suppliers, mechanics, research and development organisations, and rural supply stores.

Beef

The gross value of Australian cattle and calf production (including live cattle exports) in 2017/18 was $11.4 billion (ABARES 2018). In 2017/18, 71% of Australia's beef and veal (1.1 million tonnes) was exported to over 78 countries (ABS, DAWR) at a value of $8 billion. In 2016/17, the Australian red meat and livestock industry directly employed just over 191,800 people (Ernst & Young, MLA 2018).

The beef cattle industry is the second highest contributor to agricultural production by GVP in the Mid North Coast Sub Region. The gross value of production of beef in the Mid North Coast Sub Region was $51.1m in 2015/16 accounting for 5.5% of NSW production. Beef production occurs in all LGAs in the Mid North Coast Sub Region.

Distribution of beef producers by local government area

LGA	Gross Value of Production ($)	% share of MNC beef	% share of NSW
Bellingen (A)	$6.7m	13.10%	0.30%
Coffs Harbour (C)	$5.5m	10.70%	0.20%
Kempsey (A)	$16.4m	32.00%	0.60%
Nambucca (A)	$7.4m	14.40%	0.30%
Port Macquarie-Hastings (A)	$15.2m	29.70%	0.60%
Total	**$51.1m**		

Locational requirements

Beef production in the Mid North Coast Sub Region is largely pasture-based. The Sub Region supports both temperate and tropical breeds given the diverse range of pasture lands and climatic conditions.

The Mid North Coast Sub Region provides ideal conditions for cattle production given the climate, high rainfall and access to a number of processing facilities including NCMC at Casino; Eversons Food Processors, a multi species (lamb, sheep, cattle and goats) abattoir in Frederickton, near Kempsey; Winghams Beef Exports, near Taree; and Bindaree Beef Processing in Inverell. The region's proximity to markets including local saleyards at Wauchope, Dorrigo, Macksville and Kempsey are critical to the continued viability of the industry within the region.

Critical mass is crucial for the ongoing viability of the industry across the region and within NSW given variations in seasonal conditions across the state. The Mid North Coast Sub Region provides a locational advantage within NSW given the high average rainfall being able to maintain production when many other parts of the state are in drought and therefore providing an important breeding area for re-stockers.

Challenges

On a sub regional level, the beef industry faces high price variability and input costs; land fragmentation and subsequent high land prices for rural land impacting the ability for farmers to consolidate and expand; increased land use conflict risk from residential encroachment; heightened animal welfare, environmental and biosecurity considerations; and viability issues on smaller holdings.

Given that beef production can occur on 'lesser' quality agricultural lands there is often an argument from proponents wishing to develop such land, that the land has 'no agricultural value' as it is 'only suitable for grazing'. This argument fails to recognise the importance of livestock industries to the economy and the impacts that the cumulative loss of this land can have to critical mass considerations and the ability of farms to expand to ensure operations remain viable.

Land prices

The changing use of agricultural land to residential, particularly rural lifestyle has increased property prices substantially in the Mid North Coast Sub Region. This makes is very difficult for new entrants into the industry to purchase land within the region or for existing producers to expand.

Land use conflict

New residents to rural areas can bring new ideals or perceptions of living in rural areas. A lack of understanding of agricultural practices can lead to complaints over noise (tractors, motorbikes, weaning of calves), dust, spray and straying cattle. There have been many disagreements over boundary fencing responsibilities in the region and domestic dog attacks of livestock have been increasing.

The industry is also under pressure from various environmental groups to prevent cattle from accessing waterways. While this has proven benefits for waterway health and farm production, the capital cost and on-going maintenance that are imposed on the land holder is substantially more than any grants or assistance on offer hence adoption is low.

Flooding

The NSW North Coast is highly susceptible to flooding. It is important that grazing properties have a good balance of sloped country in association to alluvial flats to ensure adequate flood refuge is provided. While the fertile soils of the alluvial flats can produce quality pasture, flatter land can also be susceptible to frosts so access to hilly country can also ensure continued access to more palatable pastures during winter months.

This is an important land use planning consideration when considering rezoning applications. Often flood areas will be identified as residue agricultural lands given development constraints. It is important to ensure that appropriate flood refuge areas are provided for as part of the development concept plan to enable any livestock activities to be conducted on the remaining land.

Biosecurity

Noxious weeds are an ongoing challenge for rural landowners, particularly those in the beef industry as they are often the owners of large tracts of land that require ongoing management of weed species. The costs of weed control including product purchase and time, can be substantial and can impact on profitability. This is also a major challenge for producers on smaller holdings located in high lifestyle areas where these neighbouring landowners may be unaware of their biosecurity responsibilities or are 'weekenders' and often absentees. Pest animals, particularly wild dogs are a major issue in the region with anecdotal evidence of increased dog attacks and loss of calves as a result.

Opportunities

Austrade identified the following opportunities for the Australian beef industry in 2017:

- developing integrated supply chains through joint ventures to supply growing export markets
- developing value-added meat exports based on grass-fed, organic and provenance attributes
- commercialising world-leading sensing and objective measurement technologies in processing to improve cost-competitiveness of supply chains (Austrade 2017).

Dairy

Dairying is Australia's fourth largest rural industry. National farm gate production was worth $4.4 billion in 2017/18 with 8,795 million litres produced. The dairy industry employs 46,200 people nationally and exports 35% of product to Asian markets including greater China, Japan, Singapore, Malaysia and Indonesia. (Dairy Australia 2019a). Dairy production in NSW accounted for approximately 9% of national milk production in 2016/17 with around 794 million litres of milk produced. Together with the North Coast, the Sub Region is the second largest milk producing region in the State. The average dairy farm size in the region is 193 head (Dairy Australia 2019b).

The Norco Milk Factory is located in the Mid North Coast Region. Norco is a 100% farmer owned dairy-cooperative with an annual milk production of 195 million litres in 2019. The 214 dairy farms in northern NSW and south east Queensland supply milk through Norco and the cooperative turned over $603m in 2019 and employed 834 staff. In the region, 66 farms supply Norco.

Distribution of dairy producers by local government area

LGA	Gross Value of Production ($)	% share of MNC dairy	% share of NSW
Bellingen (A)	$8.2m	16.90%	1.40%
Coffs Harbour (C)	$4.4m	9.20%	0.70%
Kempsey (A)	$6.7m	13.80%	1.10%
Nambucca (A)	$9.3m	19.20%	1.60%
Port Macquarie-Hastings (A)	$19.8m	41.00%	3.30%
Total	**$48.4m**		

Trends

"Since 1979/80 the number of dairy farms in Australia has fallen by almost three quarters, to 5,213 in 2018/19. The trend in farm numbers has previously followed changes in farmgate milk prices from season to season. Strong prices tend to either slow the rate of attrition or even reverse the long-term trend. At times of low farmgate milk prices, farmers choose to leave the industry or else cease dairying operations in favour of other farming activities, such as beef cattle farming. Other factors, such as challenging seasonal conditions also affect exits from the industry. This was evident in 2018/19 following a challenging year on farm due to drought.

Changing business practices have encouraged a shift to larger, more intensive operating systems with greater economies of scale. While the number of farms across Australia has decreased, the average herd size is growing. In 1985 the average herd size was 93 cows and in 2018/19 it had grown to 276" (Dairy Australia 2019d). These national trends are also representative for the Mid North Coast Sub Region.

Around 48% of manufactured product (in milk equivalent terms) was exported and the remaining 52% sold on the Australian market in 2018/19. This contrasts with drinking milk, where most was consumed in the domestic market.

Cheese is consistently the major product stream, accounting for 38% of Australia's milk production. Recent increases in cheese production capacity suggest that this will become the case even more so in the future. Drinking milk and skim milk powder/butter production were the two next largest users of milk, accounting for 28% and 21% of Australian milk. (Dairy Australia 2019c).

Locational requirements

The climate and biophysical characteristics of the Mid North Coast Sub Region are ideal for dairying and allow the industry to be predominantly pasture-based. Most farms are in coastal areas where pasture growth is generally reliant on rainfall. Dairy production is commonly based on grazing of tropical grasses to provide feed over summer-autumn with temperate grasses re-sown annually to provide feed for winter-spring.

Conserved fodder and purchased feeds are used to fill seasonal feed gaps and to support herds in times of flood' (Stillman, Stow and Whitehead 2014) The 2019 Dairy Australia National Dairy Farmer Survey showed that nearly all dairy farmers engaged in some level of supplementary feeding. In 2018/19 the national average was around 1.6 tonnes per cow per year. Access to supplementary feed supplies is therefore highly important to the industry.

The Mid North Coast Sub Region has a relatively high rainfall however access to irrigation water and water allocations are important during dry times.

Secondary industries

Processors, value-adding (cheese, ice-cream, flavoured milk), transport, dairy veal, rural stores, veterinary health, agronomist/ extension officers.

Challenges

The trends in milk production in the Mid North Coast Sub Region 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 dairy industry. This is because land suited for the dairy industry is also well suited to a range of other enterprises and is or could be potentially used for other agricultural purposes such as beef cattle.

Statewide dairy industry pressures include:

- 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.

Nurseries, cut floweres and cultivated turf

The nursery industry is an important industry for the Mid North Coast Sub Region worth $11.5m in GVP in 2015/16 when combined with cut flowers and turf. The category represents 19.9% of NSW GVP with cut flowers totalling 7.7% of NSW production. The industry is critical to the region's commercial horticultural industry as well as providing cut flowers and products for the domestic gardening and landscape industry. The Mid North Coast Sub Region is suited to the nursery industry due to its climate, water availability, proximity to markets and established road infrastructure.

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

LGA	Gross Value of Production ($)	% share of MNC nurseries, cut flowers and cultivated turf	% share of NSW
Coffs Harbour (C)	$5.7m	49.00%	1.90%
Kempsey (A)	$3.6m	31.30%	1.20%
Nambucca (A)	$1.9m	16.20%	0.60%
Total	**$11.5m**		

Trends

Protected cropping

Intensification of production through protected cropping is considered to be the future of nursery 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.

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 these nursery operations.

Indoor nurseries

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

Secondary Industries

The nursery industry in the Mid North Coast Sub Region relies on many of the similar secondary industries as the other agricultural industries in the region. The industries does however require specialist potting mix suppliers and a supplier of 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 nursery 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 sensitive land uses such as residential and tourism land uses.

Land use conflict

One of the major threats to the continued operation of nursery enterprises in the Mid North Coast region is land use conflict arising from increased urban encroachment. There are a number of case studies relating to this with complaints often leading to increased consent conditions for nursery operators.

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 they have identified also 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 rights 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

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.

A reliable water supply, telecommunications and good electricity and gas supplies provide suitable requirements as protected cropping enterprises are not dependent on soil fertility. Sites which are relatively flat and cleared are preferred for glasshouse construction to avoid the need for expensive clearing and landform modification.

Associated Industries

There are a number of emerging industries such as specialist plant breeding enterprises which specialise in propagation, that could improve efficiency and may increase the value of the nursery industry in the region.

Vegetables

The Mid North Coast vegetable industry provided $7.8m in GVP to the economy in 2015/16 providing significant employment opportunities in the region through on farm activities and ancillary industries. $2.6m of the GVP was from tomatoes as the highest vegetable commodity for the region.

Vegetable production occurs throughout the Mid North Coast Sub Region, generally on the more fertile soils, such as the Dorrigo plateau, and where adequate water is available. There is however an increasing investment in greenhouse horticultural production within the region.

Distribution of vegetable producers by local government area

LGA	Gross Value of Production ($)	% share of MNC vegetables	% share of NSW
Coffs Harbour (C)	$2.9m	36.60%	0.70%
Kempsey (A)	$1.4m	18.30%	0.30%
Nambucca (A)	$1.9m	24.10%	0.40%
Port Macquarie-Hastings (A)	$1.2m	14.80%	0.30%
Total	**$7.8m**		

Trends

'The number of Australian vegetable farms fluctuates considerably from year to year, with many farms growing vegetables when prices or seasonal conditions make it a profitable enterprise and switching to other crops in other years.

The Australian vegetable industry has a large population of small farms, with over 30% of vegetable-growing farms in 2016/17 planting fewer than five hectares to vegetables, and nearly two-thirds of the industry planting fewer than 20ha.

However, the overall volume of production is dominated by larger farms, with the 13% of farms that planted more than 70ha to vegetables in 2016/17 representing over 60% of all Australian vegetable production (Ausveg 2020).

Dietary and health habits have in the last decade, emerged as two of the most influential areas of consumer behaviour. The adoption of the term 'superfood' is a demonstration of consumers' readiness to reappraise even familiar foods in the context of current and emerging dietary, and health trends. Consumption of foods that have a role to play in dietary and health trends has the potential to experience significant increases in sales and consumption volume (Kwong, J 2016).

In 2016 Horticulture Innovation commissioned a review of emerging macro trends. The key emerging macro (large scale) trends identified were:

- Nutritional: vegetarianism, meat substitutes, gut health, mental health, dietary supplements, meal replacements.
- Other: Searching for new, naturally derived beauty products; hormonal balance and spirituality.

Secondary industries

The vegetable industry, both the protected cropping and inground variants, are reliant on several ancillary industries that are also utilised by other agricultural enterprises. The industries require packing facilities, machinery and irrigation equipment suppliers, mechanics, freight – logistics, competent trades, agronomy or extension services and rural supply stores.

Challenges

Urbanisation

The industry is facing increasing pressures of urbanisation and rural residential developments.

Land prices

Newcomers to the industry are faced with very high prices for land and competition from land bankers.

Protected cropping

A significant limiting factors to the future development of the protected cropping industry is regulation by councils and other bodies. The industry feels that their requirements are not fully understood by the regulatory bodies, and that an education program to explain their requirements to these regulatory bodies would help.

Land use conflict

The industry like others in the region is under threat from landuse conflicts with new owners of adjacent land (the conflict usually revolves around noise, odour and spraying).

Opportunities

Agri-tourism

There a number of opportunities for niche enterprises such as organic farming, agri-tourism, farmers' markets, or farm trails. The location benefits from close proximity to South East Queensland and Newcastle where residents from these areas can visit for the rural atmosphere.

Proximity to markets

The locational advantages of the Mid North Coast Sub Region, including proximity to markets, presents an opportunity for increased vegetable production particularly in niche products and organics.

Food security

Current global activities have highlighted the importance of food security and alternative markets for supplying fresh food into homes. Fruit and vegetable box delivery is an increasing market opportunity for growers in the region.

Marketing

Food provenance is becoming increasingly important to consumers. There are opportunities for further marketing of the region's fresh produce particularly given the proximity to restaurants in the Gold Coast and Newcastle.

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NSW GOVERNMENT 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