NSW GOVERNMENT | Department of Primary Industries

Agriculture Industry Snapshot for Planning

Northern Slopes and Tablelands Sub Region

August 2020

The value of agricultural production in the Northern Slopes and Tablelands Sub Region was over $1.15b from a range of livestock for meat and wool, broadacre crops, fruit, vegetables and nuts (ABS 2015/16). It produced 22% of NSW's beef ($564m) and 54% of NSW's tomatoes ($18m). Agriculture and agricultural product manufacturing also employ the largest percentage of people across the Northern Slopes and Tablelands (ABS 2015/16). Many areas remain largely unfragmented and support ongoing investment in agricultural enterprises. Coupled with high quality soils and relatively high rainfall, as well as access to markets in Tamworth, Sydney, Mid North Coast and Newcastle is the foundation for a strong profitable agricultural sector that underpins the region's economy. However, while the Northern Slopes and Tablelands is mainly used for agriculture, the expansion of residential and lifestyle development has incrementally pushed farming out of some areas and makes it difficult for remaining producers to operate. Some farmers and value-adding industries in the Northern Slopes and Tablelands need to deal with increased land use conflict and inflated land prices due to competing interests particularly around larger towns.

Purpose

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 Northern Slopes and Tablelands and their interactions with suppliers, processing facilities and markets.

Establishing 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.

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

Agriculture in the Northern Slopes and Tablelands Sub Region

Agriculture is a key industry for the Northern Slopes and Tablelands. The area is particularly important for beef, sheep and wool, broadacre crops, poultry, vegetables and certain fruits and nuts. The Northern Slopes and Tablelands is 58,652 km^2 in area and includes Tamworth Regional, Gwydir, Inverell LGAs on the Slopes, and Tenterfield, Glen Innes Severn, Armidale Regional, Uralla and Walcha LGAs on the Tablelands. It is home to 130,457 people (ABS 2016), with near 60,000 in Tamworth Regional LGA. The following table shows the Gross Value of Production (GVP) and percentage share of agricultural output for the Sub Region and NSW for each of the top industries.

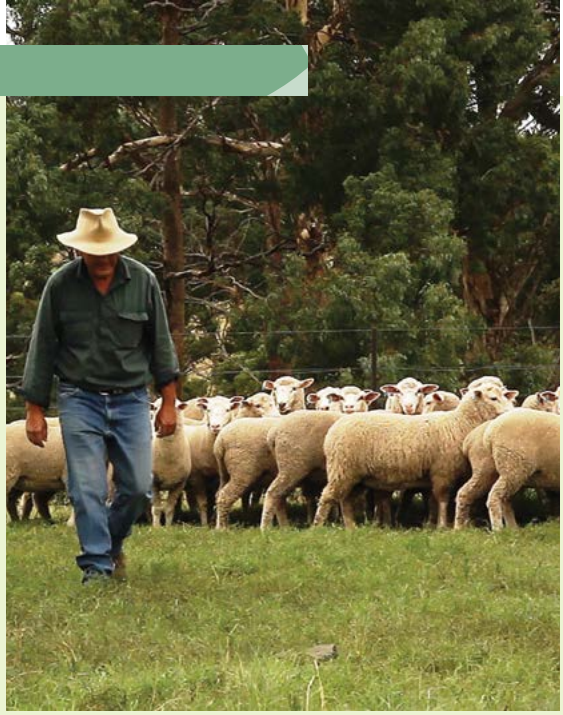
Industry	Gross Value of Production ($)	% share of Northern Slopes and Tablelands total	Number of businesses	% share of NSW
Beef	$563.9m	49%	2,635	22%
Poultry (meat and egg)	$99.2m	9%	68	11.3%
Sheep and lamb	$64.1m	6%	1,446	8.7%
Wool	$87.2m	8%		9.2%
Broadacre cropping	$226m	20%	552	4.5%
Hay	$24.2m	2%	469	7.4%
Fruit and nuts	$21.4m	2%	22	3.5%
Vegetables	$26.6m	2%	27	6.3%
All other agriculture	$39.6m	3%		1.7%
TOTAL	**$1.15b**			**8.8%**

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

In 2015/16, livestock production was the dominant industry in terms of GVP, contributing $731m (ABS), being 63% of the Northern Slopes and Plains regional GVP and 16.7% of NSW GVP. It also produced 20% of the Northern Slopes and Tablelands broadacre crops, 4.5% of NSW output; also 11% of NSW's poultry and 9% of NSW's wool. 100% of NSW's peanut production comes from the region (Gwydir and Inverell LGAs).

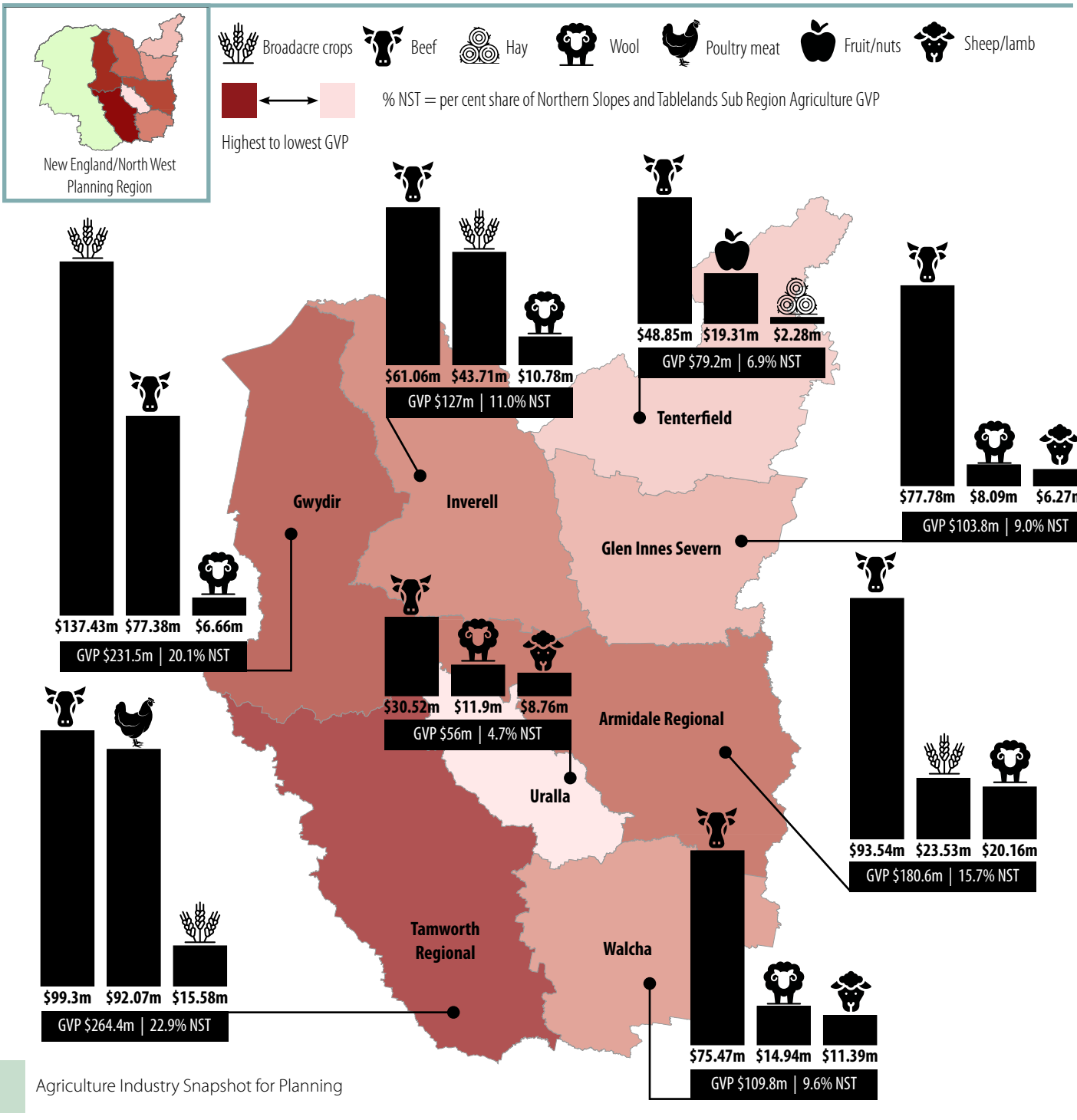
Employment

Agriculture employs over 6,342 people across the Northern Slopes and Tablelands (ABS, 2015/16). The biggest employer is sheep, beef and grain farms (75.7%) followed by the vegetable industry (4.4%) and poultry industry (3.3%). The LGAs with the highest agriculture employment are Tamworth Regional (25.1%) and Armidale Regional (19.2%). Agriculture is the highest employment sector. These are people linked to 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 base that were not working in the Northern Slopes and Tablelands during the ABS census collection time of the year.



Local government distribution

The following map shows the local government areas in the Northern Slopes and Tablelands and agricultural GVP of the three leading industries for each. The biggest individual contribution is Tamworth Regional Council with $264m followed by Gwydir Council which contributed $231m and Armidale Regional contributed over $180m.



Agricultural highlights of the Northern Slopes and Tablelands Sub Region

The Northern Slopes and Tablelands contains some of the most highly productive and sought-after agricultural land in NSW. The variety of landscapes supports a diverse range of agricultural industries that place a high value on rainfall and topography, with altitudes ranging from 275m at the western edge of Gwydir Council to around 1,400m in the Glen Innes Severn Council. The Northern Slopes (Tamworth Regional, Gwydir, Inverell) contain highly productive broadacre dryland cropping areas. Beef production is complementary to many cropping enterprises, however, intensive livestock production (beef feedlots and poultry farms) is well suited to the area due to access to grain on farm and from nearby grain growing areas of Liverpool plains, Gunnedah, Narrabri, and Moree. The rich alluvial soils of the Slopes area are also well suited to lucerne and pasture for hay production and dairy enterprises.

The Northern Tablelands has a mixture of underlying granite, basalt and sedimentary soils which combined with reliable high rainfall and a mild climate provide ideal conditions for improved pastures for livestock production. The Tablelands environment also provides niche opportunities for higher altitude fruit and vegetable production that significantly contribute to total NSW production. There are some areas where non-agricultural land uses such as lifestyle subdivision and housing affect farming enterprises.

This section highlights the prominent industries for the Northern Slopes and Tablelands.

Livestock for meat (beef and lamb) and wool

Combined rainfall of over 700mm per annum, fertile soils and a temperate climate provide ideal conditions for improved pastures for livestock grazing.

The Northern Slopes and Tablelands beef enterprises deliver the highest gross value of beef to NSW of any other region of $563.9m (ABS 2015/16). The highest livestock production rates are achieved on basalt derived soils (Reid N. et al. 2006). Beef production on the Northern Slopes complements broadacre cropping.

Sheep and lamb meat coupled with wool production is the third highest agricultural industry generating $151.3m (ABS 2015/16) for the Northern Slopes and Tablelands economy.

Sheep enterprises have seen a shift in industry focus from wool toward slaughter lamb production, however in 2015/16 wool was still the major economic contributor in sheep enterprises.

The Northern Tablelands is known for its production of 'superfine' wool and is home to many superfine merino studs and producers. Fine wool production takes advantage of the lighter soil types such as those with a granite parent material, while fat lambs thrive on the heavier alluvial and basalt soils with improved pasture or fodder crops.

Industry requirements

Livestock grazing production requires large areas of unconstrained land with opportunity for producers to increase scale without risk of land use conflict. The return on enterprises will also be influenced by rainfall, climate, topography and soil type. Holding sizes of such unconstrained land need to reflect the ability for livestock enterprises to return a gross margin that can cover associate costs and deliver a sustainable income.

Pasture-based cattle, sheep and wool production needs access to suitable water supply, and relies on a range of infrastructure for livestock handling, husbandry, fodder production, storage and transport access. Typically, livestock are managed in a system of rotational grazing, with paddocks recuperating after grazing. Livestock grazing on the Tablelands typically involves improved pastures.

Wool growing is a specialised industry with a specific set of biophysical (land and climate), labour, management and animal husbandry requirements to meet market specifications. Super fine wool enterprises take advantage of the lighter soil types and those with a granite origin to produce a premium product.

Abattoirs are located at Tamworth and Inverell and outside the region at Scone, Wingham, Casino and Dinmore (Qld). Saleyards are located at Tamworth, Inverell, Armidale, Glen Innes, Walcha and Tenterfield. Modern livestock marketing using internet auctions sees livestock sold further out into NSW and QLD for slaughter. Meat product manufacturing employs a significant number of people in Inverell and Tamworth.

Intensive livestock – beef and sheep

The Northern Slopes and Tablelands has many large beef feedlots capitalising on competitive advantage of proximity to grain as a feed source and supply of livestock from improved pasture-based breeding enterprises. Beef feedlots are also a way for grain producers to value add to grain produced on-farm. Finishing beef and lambs in feedlots is an efficient way to enable livestock to meet market requirements. Lot feeding and finishing of livestock complemented the Tablelands livestock grazing industry over the 2017/2020 drought where livestock were able to be finished where otherwise pasture finishing was unavailable.

Industry requirements

Intensive beef and sheep production requires unconstrained land with opportunity for producers to increase scale without risk of land use conflict. A reliable, efficient road system is needed for transporting stock, access to sale-yards or processors and delivery of feed supplies. The Tamworth Regional Livestock Exchange is the fourth largest saleyard complex in NSW, along with Inverell and Armidale saleyards.

The supply of finished beef cattle from farms or feedlots, sheep meat and poultry underpin a critical mass of primary product to support the value adding supply chain of local meat processors, transport companies, rural suppliers, agronomic and veterinary services, livestock marketing agents and meat retail outlets. As with all farmers, producers need to manage plant and animal pests with a variety of methods.

Broadacre crops

Broadacre cropping is the second highest grossing industry, generating $226m. Broadacre cropping in the Northern Slopes and Tablelands has the advantage over other cropping areas as it has a higher, more reliable summer-dominant rainfall, and milder temperatures which allows for a wide variety of both winter and summer crops to be grown. Data (ABS 2015/16) shows the Northern Slopes and Tablelands significant contribution to NSW production of barley (7.4% NSW GVP), sorghum (9.64% NSW GVP), chickpeas (13.34% NSW GVP), mung beans (19.9% NSW GVP) and peanuts (100% NSW GVP).

Crops are grown in varying rotations depending on site characteristics, seasonal variations, disease control, market demand and production preferences. Hay is produced across the Northern Slopes and Tablelands with cereal hay closely linked with the main broad acre cropping areas.

Industry requirements

Dryland cropping systems have developed based on the physical environment of soil type, climate and reliable rainfall. It is also facilitated by the large holdings in a non-fragmented landscape which accommodate the changes in technology and economies of scale necessary to drive profitable broadacre cropping enterprises. A wide range of secondary industries are required to support the inputs and outputs of broadacre crop production, such as machinery and irrigation equipment suppliers, mechanics, freight and logistics, trades, and rural suppliers, agronomic services, grain storage and marketing, milling, contract planting and harvesting.

Graincorp has grain storage infrastructure, and there are grain milling industries located in Tamworth and Inverell and in nearby Gunnedah.

Poultry

Poultry meat is ranked the fourth largest GVP industry in the Northern Slopes and Tablelands. Poultry meat production is a significant industry generating $99.2m (ABS 2015/16). The poultry industry has historically had a large presence in the southern area around Tamworth due to its climate, proximity to grain from cropping areas, access to labour, markets and secure water. The poultry meat production is centred around a poultry processing plant located in Tamworth. Poultry meat production requires proximity to processing facilities (~2hrs), reliable water and electricity supply. The poultry meat industry is a highly integrated industry with well-coordinated management of local hatcheries, feed mills and a network of contract growers providing a constant supply of livestock to the Tamworth poultry processing plant. The industry has significant potential to expand given the national demand for poultry products. However, for this potential to expand it must be supported with strong planning provisions that deliver clear direction and support for the industry and stop fragmentation of rural land.

Industry requirements

Most poultry are produced under intensive indoor production systems, housed in large sheds. Intensive poultry operations require large separation distances from sensitive receptors, reliable feed and water supplies, drainage and waste disposal systems, and quality road access to processors. Usually large areas of unfragmented rural zoned land are required for intensive operations to incorporate buffers to manage biosecurity, amenity, odour and noise. Legitimate agricultural activities may cause external emissions such as noise, dust and lightspill anytime over 24 hours including early mornings and late evenings, depending on the enterprise.

Fruit and nuts

Fruit production was historically a major industry for the Northern Slopes and Tablelands but it has not maintained a competitive advantage over the Central West, South Eastern, Murrumbidgee and Murray regions for many fruits. However, the area still provides a suitable environment for fruit production. The fruit industry, while only making relatively small contribution to gross value of production, still makes a significant percentage contribution to the NSW production supply chain as outlined in the below table.

Industry	GVP ($)	% share of NSW
Blueberries	$14m	11.9%
Avocados	$5.8m	16%
Strawberries	$0.1m	8.75%
Pears (including Nashi)	$0.06m	17.65%
Fruit and nuts total	**$21.4m**	**3.5%**

The current and historical fruit production highlights the importance of the area's contribution to NSW supply and the diversity of agricultural commodities that can be produced in the Northern Slopes and Tablelands should market opportunities emerge.

The Northern Slopes and Tablelands has favorable vegetable growing conditions producing 54% of NSW tomatoes with a gross value of $18m (ABS 2015/16). The Costa Group is a major producer of tomatoes with significant investment in glass house production at Guyra. Mulgowie Farming Company at Glen Innes produced 89% of GVP of NSW beans (ABS 2015/16).

Industry requirements

Fruit growing, protected cropping and in ground vegetable production all require high quality reliable water supplies or high reliable rainfall to meet requirements. Risk of water stress in many fruit and vegetable crops is minimised by the milder climate. The low humidity, cooler temperatures, high light intensity and good quality fertile free draining soils are ideal for fruit and vegetable crops.

The Costa Group selected Guyra to establish a large (30 hectares) glasshouse due to unique micro-climate of high light radiation levels in winter and cool summer months – a weather combination rarely seen anywhere else in the world.

Freight networks (road and rail) exist, linking with Sydney, Newcastle and Brisbane.

Fruit and vegetable industries utilise suppliers of machinery, irrigation equipment and rural supply stores and service providers such as freight companies, horticulturalists and wholesalers.

Northern Slopes and Tablelands Sub Regional assets for agriculture

The Northern Slopes and Tablelands has diverse growing conditions that suit a wide variety of agricultural enterprises and commodities. The cooler conditions and high rainfall are ideally suited to improved pasture production and grazing systems. Good quality agricultural soils, high land capability, access to irrigation water and a range of rainfall zones enable highly productive farms to prosper, especially livestock (beef, sheep meat and wool) and an extensive range of winter and summer crops (dryland and irrigated). The Northern Slopes and Tablelands has established farming systems, services, infrastructure and practiced farm operators. The Northern Slopes and Tablelands also has a geographical advantage given its proximity to Newcastle and Sydney and access to Brisbane; traversed by major national road and rail routes (RMCG 2015).

Supporting industries and infrastructure

The Northern Slopes and Tablelands has a comprehensive range of support services and infrastructure, processors, transport and logistics, professional services and farm supplies. Although concentrated in larger centres of Tamworth, Armidale and Inverell, there are locally significant services in most other towns. Before agricultural produce makes it to market, there are inputs such as fertiliser, fuel, technical support services such as agronomists, vets and mechanics, processing facilities, transport and infrastructure, etc. There is also substantial movement of produce within the region supplying grain to intensive animal producers and moving livestock to processing plants. The interactions of these agricultural industries with their secondary industries is a critical consideration in planning for agricultural land uses.

Good transport networks, with the New England Highway providing the main access south to Newcastle and Sydney and north to Brisbane. The Gwydir, Oxley and Bruxner highways provide transport routes into and out of the Northern Slopes and Tablelands.

Climate

The Northern Slopes and Tablelands Sub Region is generally known as having a summer dominant rainfall pattern. Rainfall decreases further west. The average annual rainfall has traditionally ranged from around 400-800mm in the northern slopes in the west to 1,200mm+ per annum in the northern tablelands in the east (OEH, 2014). The southern slopes average rainfall is around 620mm and on the south Tablelands 900mm. Water supply provided by many rivers and the Murray Darling Basin watercourses and Copeton, Pindari, Split Rock and Chaffey dams are also key reasons for the success of many agriculture industries.

Average temperatures vary from warm summers (26-28^{0}C) and mild winters (12-14^{0}C) on the slopes to mild summers (16-18^{0}C) and cold winters (4-6^{0}C) on the tablelands (OEH, 2014). Frosts occur across the slopes while frost and snow are common at higher altitudes over the winter months across the tablelands. The climate in the northern slopes region is conducive to summer cropping and hay/pasture production and some winter cropping.

Biophysical characteristics

The Northern Slopes and Tablelands has a diverse geological history which leads to some highly fertile soils and good land capability. The underlying granite, basalt and sedimentary geology of folded beds of inclined shales, sandstones, greywackes and conglomerates give rise to wide range soils across the region. Soils on the Tablelands range from those derived from weathered basalt (Ferrosols), red, brown and yellow duplex soils (Chromosols) from a weathered sedimentary material through to sandy soils (Podosols) originating from weathered granite parent material. The alluvial soils formed along rivers and valleys are a highly productive and valuable resource to the Northern Slopes and Tablelands, supporting fodder production.

Good quality agricultural soils, high land capability, access to irrigation water and a range of rainfall zones enabling highly productive farms to prosper, especially livestock (beef, sheep meat and wool) and an extensive range of winter and summer crops (dryland and irrigated); established sound farming systems and practiced farm operators. (RMCG 2015).

Locational advantage

Rising interest in Australian agriculture is also 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 communities that warrant its support and preservation through planning instruments, despite inherent difficulties with coexistence with urban sprawl in some places (Brinkley, C, 2012). The Northern Slopes and Tablelands Region has reciprocal advantages for producers providing these services with markets, access to supply chain and value adding.

The regional cities of Tamworth and Armidale and smaller towns provide restaurant, café and other markets as well as interstate visitors for existing and future agri-tourism and value added enterprises. The proximity to Newcastle and Sydney and access to Brisbane; traversed by major national road and rail routes provides many advantages to the Sub Region.

Challenges for agriculture in the Northern Slopes and Tablelands Sub Region and planning levers

Challenges for agriculture are connected to climate change, reliable telecommunications technology, commodity prices and in some areas, land use conflict and right to farm. Development unrelated to agriculture such as housing and renewable energy projects such as wind and solar farms can create land use conflict where expectations of amenity are not met, in turn placing pressure on producers to adjust their normal practices and rural amenity. This competition for land has a real potential in the region for dislocation and transfer of agriculture (particularly intensive agriculture) to other areas. Agricultural land is a finite resource, even in the Northern Slopes and Tablelands where land fragmentation has created undersized rural holdings which are used for lifestyle purposes in some areas.

This section highlights some of those challenges and planning solutions.

Historic land use planning

Historic planning policy has not strategically valued and protected rural land in many areas, instead regarding it as 'urban land in waiting' (Houston 2005). 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 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 levers

Future land use planning must recognise the importance of agriculture to society and the economy and 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 and agricultural processors 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 agricultural industries to quickly respond to market forces. Intensive agricultural 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 impacts of the land use.

Planning levers

Clear development controls which specify requirements for intensive agricultural development, and non-agricultural developments on or near agricultural land, 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.

Urban encroachment and competing land uses

The land use zones that apply to land on which agriculture occurs often permit a wide range of other land uses that are unrelated to agriculture. For example, with population growth and change, there will be pressure to use rural land on the edge of urban areas to accommodate residential development and other urban land uses. Competition for rural land on which agriculture can occur can lead to increased land prices and uncertainty for agricultural industries and investors. This often results in dislocation and transfer of agriculture to other areas, sometimes at great personal cost to producers and their industry. Equally it places pressure on producers to adjust their normal farming practices to minimise impacts which can increase costs and threaten viability.

Planning levers

Planning controls which limit the range of permissible non-agricultural land uses in rural zones can prevent the encroachment of urban land uses on agricultural industries. Planning controls which require adequate buffer distances between land uses can also mitigate potential impacts on and 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 (UoN 2019). Council can help facilitate this education process. 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 58% of the Northern Slopes and Tablelands. Rural land i is characterised by a highly fragmented land use pattern. Analysis of rural land found that:

- 16% is comprised of lots 1 - 5 hectares in size
- 25% is between 5 and 20 hectares
- 18% is between 20 and 40 hectares
- 22% is between 40 and 100 hectares
- 20% is greater than 100 hectares in size.

Areas near regional settlements experience pressure for lifestyle subdivision, usually involving agricultural land. While there would appear to be ample land available in the region, it is important that urban development does not compromise productive potential. 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 levers

Planning policy which sets an appropriate minimum lot size for a dwelling house and prevents the further subdivision of rural land, except where there is a demonstrated agricultural need, can prevent the adverse impacts of land fragmentation. Councils can also limit the amount of fragmentation for dwelling houses in highly productive rural areas.

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.

Planning levers

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

The New England and North West 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 2.2^{0}C by 2070. Minimum temperatures are projected to increase by 0.7^{0}C by 2030 and 2.3^{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 (over 35^{0}C) is projected to increase on the Slopes by another 1-5 days by 2030 and 5-10 by 2070; with moderate increases expected on the Tablelands (1-5 by 2070) with increases most pronounced in spring and summer. Minimum temperatures are projected to increase across the region. Prolonged periods of hot days increase heat stress on plant and animal production systems.

Rainfall is projected to decrease over summer by 2030 but is expected to increase by 2070. Across the north west winter rainfall is expected to decrease by 2030. Climate models indicate both wetter and drier scenarios for annual rainfall with the range of change -9% to +13% by 2030 and -9% to +24%.

The impacts of climate change highlight the need to protect land for its future productive capacity and where there is a combination of biophysical assets such as water, topography and soils. The Northern Slopes and Tablelands supports high value agriculture now and will be important to sustain production of more specialised agricultural and horticultural enterprises into the future. A critical concern to agriculture is securing water for production in terms of quality, quantity and delivery.

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 West and Northern Tablelands Local Land Services. The distribution, abundance and management of insects, pathogens and weeds is also being affected by climate change. The likelihood that tropical or semi-tropical pests will spread southward in Australia, or become established after an incursion, increases with climate warming. Stressed plant systems (crops) may become more vulnerable to insect and disease outbreaks as the efficacy of current control measures are altered.

The combination of urban areas, open rangelands, forested areas and water sources results in serious pests such as foxes, wild dogs, deer, pigs, cats, rabbits and goats. Numerous plant species are already in the landscape and have a large impact on remnant vegetation and rural land.

Social licence

A social license to operate refers to the perceptions of local stakeholders that an industry which 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, ethical land and livestock management and adherence to best practice operations to minimise potential environmental impacts. Producers can help to protect their social licence through 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 Australia's presence in global agricultural markets, farmers are often 'price takers' which can have significant adverse impacts on smaller more marginal operations.

As with many other regions, Northern Slopes and Tablelands farmers operate in a competitive environment for growing and selling produce. Some farm businesses are undertaking their own marketing through contract selling to processors or major retailers, while others are focused on niche markets for premium produce. Vertical integration of agricultural enterprises across the supply chain is achieving efficiency gains and price competitiveness. A reduction in the number of farms, increasing farm size and output concentration, are clear in the Northern Slopes and Tablelands agricultural industries.

Opportunities for agriculture in the Northern Slopes and Tablelands Sub Region and planning levers

The Northern Slopes and Tablelands agricultural industries are recognised as the main 'engine industry' in the Northern New England High Country Regional Economic Development Strategy 2018-2022. The competitive advantages of the region are connected to the favourable biophysical conditions for crop diversity and improved pasture growth supporting livestock production. The diversified economy based on agriculture has benefits for regional urban and rural communities. Towns and cities benefit from agriculture through ecosystem services, scenic values, 'green space', value-adding (processing), education, research and food provenance. Agriculture supports a supply chain that generates substantial productivity and employment across local, regional and national scales.

This section identifies the practical land use 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. Producers can increase scale through expanding operations onto additional land that is currently under utilised and intensification of agricultural operations. Commercially viable agricultural operations in the region are intensive operations such as horticulture, dairy, poultry, pigs and livestock lot feeding. Improvements in technology and reductions in capital costs mean that intensification is feasible. Some intensive agricultural operations can more closely resemble manufacturing processes as they require expansive sheds where climatic conditions are controlled and impacts from noise and odour mitigated.

Most intensive agricultural operations need to establish infrastructure such as sheds, greenhouses, irrigation systems and water storage, netting or vehicle access which require 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.

The intensive nature of these operations enables high revenue generation making them a viable option where there is no ability to physically expand. 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 need for fresh food to be available locally for the health of the community is a key opportunity for the Northern Slopes and Tablelands. There are marketing opportunities for food producers to leverage the benefits of local food production to differentiate their product in the market. Population and markets in Newcastle and Sydney are expected to continue growing by 2050 which will increase and sustain demand for food and fibre. Global markets will continue to demand Australian produce. In combination these factors will lead to a higher value of agricultural production.

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 transport links to Sydney and Newcastle and favourable biophysical assets of rainfall, water, productive soils and farming infrastructure means that the Northern Slopes and Tablelands is well positioned to capitalise on growing community interest in food provenance and agri-tourism. The New England and North West Regional Plan 2036 and Regional Economic Development Strategies all identify the need for diversification of agricultural commodities to include agri-tourism, boutique and artisan produce, and value adding.

Value-adding agricultural produce and farm gate sales provide the opportunity to increase or augment the income generated from agricultural production. Value-added manufacturing and food processing in the region already include a range of fruits and vegetables and processing of food products.

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 requires significant capital investment and the development of new skills but have the potential to significantly improve the economic viability of agricultural operations.

Agri-tourism in the form of low-key farm stays and bed and breakfast establishments can provide an alternative income stream for agricultural producers while also educating the community about the activities that occur on farm. These ancillary land uses should not compromise the agricultural production being undertaken on the land and agricultural production should be the primary land use. The Northern Slopes and Tablelands provides an opportunity to promote NSW's 'clean and green' production to the world through the high levels of tourism.

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 Northern Slopes and Tablelands is uniquely positioned to provide promotion and education opportunities for the broader agricultural industry. Agricultural research by UNE and NSW DPI provide further opportunities for education of farmers, local governments and communities on sustainable production, innovative farming systems, climate change and the challenges facing agriculture and producers. This education is important for consumers who might not otherwise understand how their food is produced and the intricacies of the food production chain. 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.

Planning levers for peri-urban farming

a. 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.

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 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 parts of the planning system to facilitate this.

Strategic planning

Local strategic planning statement

A local strategic planning (LSPS) 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 Land Use Strategy

The New England and North West 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 (LEP)

An 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.

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:

- 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.

References

Boult, C & Chancellor, W 2020, Productivity of Australian broadacre and dairy industries, 2018–19, ABARES research report, Canberra, March.

Brinkley, C, 2012, Evaluating the Benefits of Peri-Urban Agriculture, Journal of Planning Literature, 2012 Aug; 27(3): 259–269.

Department of Primary Industries, Intensive Livestock Unit 2018, Implications for agricultural production, August 2018, Unpublished.

Department of Primary Industries, Local Strategic Planning Statements, https://www.dpi.nsw.gov.au/data/assets/pdf_file/0005/849857/dpi-ag-advice-to-assist-councils-to-prepare-local-strategic-planning-statements.pdf

Future Directions, Localising food production: Urban Agriculture in Australia, 2015, http://www.futuredirections.org.au/publication/localising-food-production-urban-agriculture-in-australia/

Goodall, A. (2018), Right to Farm- Agricultural Land Use Survey: Final Report, Institute for Public Policy and Governance, University of Technology Sydney, Sydney; prepared for the NSW Department of Primary Industries.

Horticulture Australia Limited, 2013. Australian Vegetable Export Opportunities

Houston, P, 2005, Re-valuing the Fringe: Some Findings on the Value of Agricultural Production in Australia's Peri-Urban Areas, Primary Industries and Resources South Australia, https://www.parliament.vic.gov.au/images/stories/committees/osisdv/sustainable_development_of_agricultural_business/submissions/T._Budge_Attach_3.pdf

Meat and Livestock Australia, 2019, Saleyards Survey 2019, https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/saleyard-surveys/saleyard-survey-2019.pdf

McRobert, K, Fox, T, Heath R and Admassu, S, 2020, 'Managing farm-related land use conflicts in NSW', Research Report, Australian Farm Institute

RMCG

Ismail, H, 2015, Localising Food Production: Urban Agriculture in Australia, http://www.futuredirections.org.au/publication/localising-food-production-urban-agriculture-in-australia/

NSW Office of Environment and Heritage, 2014, New England and North West Climate Change Snapshot, http://www.climatechange.environment.nsw.gov.au/~/media/NARCLim/Files/Regional_Downloads/Climate_Change_Snapshots/New England and North West Climate Change Snapshot.pdf

Livestock for meat (beef and lamb) and livestock products (wool)

The Northern Slopes and Tablelands livestock industry is primarily centered on beef cattle production ($563.9m). Beef production is successful in the region due to the high rainfall, good soils, and mild climate which suits pasture growth. Beef production complements cropping systems. Beef feedlots are also used to add value to grain from cropping enterprises.

Distribution of livestock and livestock products by local government area

Beef

The main local government areas to produce beef are:

LGA	Gross Value of Production ($)	% share of NST beef	% share of NSW
Armidale Regional	$93.54m	16.6%	3.7%
Glen Innes Severn	$77.78m	13.8%	3.0%
Gwydir	$77.38m	13.7%	3.0%
Inverell	$61.06m	10.8%	2.4%
Tamworth Regional	$99.30m	17.6%	3.9%
Tenterfield	$48.85m	8.7%	1.9%
Uralla	$30.52m	5.4%	1.2%
Walcha	$75.47m	13.4%	2.9%
Total	**$563.9m**	**100.0%**	**22.0%**

Lamb

The main local government areas to produce lamb are:

LGA	Gross Value of Production ($)	% share of NST lamb	% share of NSW
Armidale Regional	$16.14m	25.2%	2.2%
Glen Innes Severn	$6.27m	9.8%	0.9%
Gwydir	$4.33m	6.7%	0.6%
Inverell	$7.67m	12.0%	1.0%
Tamworth Regional	$8.13m	12.7%	1.1%
Tenterfield	$1.47m	2.3%	0.2%
Uralla	$8.76m	13.7%	1.2%
Walcha	$11.39m	17.7%	1.6%
Total	**$64.1m**	**100.0%**	**8.7%**

Wool

The main local government areas to produce wool are:

LGA	Gross Value of Production ($)	% share of NST wool	% share of NSW
Armidale Regional	$20.16m	23.1%	2.1%
Glen Innes Severn	$8.09m	9.3%	0.9%
Gwydir	$6.66m	7.6%	0.7%
Inverell	$10.78m	12.4%	1.1%
Tamworth Regional	$12.43m	14.3%	1.3%
Tenterfield	$2.28m	2.6%	0.2%
Uralla	$11.90m	13.6%	1.3%
Walcha	$14.94m	17.1%	1.6%
Total	**$87.2m**	**100.0%**	**9.2%**

Trends

Beef productivity growth averaged 1.0% per year from 1977 (Boult and Chancellor 2020). Productivity improvements in this industry are attributed to improved pastures, animal breeding and veterinary management.

The major change in productivity in the sheep industry (over the last 30 years) has been defined by the rapid industry expansion and then subsequent and dramatic collapse in the wool reserve price scheme in 1991 (Dahl et al. 2013). The overall total-factor productivity growth experienced by the sheep industry has been close to zero in the last 30 years, however the shift in industry focus away from wool toward slaughter lamb production in the mid 1990s has coincided with a recent turnaround in productivity growth (RMCG 2015).

Locational requirements

Livestock production requires unconstrained land with opportunity for producers to increase scale without risk of land use conflict. Pasture-based cattle and sheep production needs access to suitable land and water supply, and a range of infrastructure for livestock handling, husbandry, fodder production, fodder storage and access. Typically, livestock are managed in a system of rotational grazing, with paddocks recuperating after grazing.

The Northern Slopes and Tablelands has large beef feedlots, the largest located north in Glen Inness, Gwydir and Inverell shires. Intensive beef, lamb and poultry operations increase the amount of transport movements carrying stock and feed. Intensive animal industries need large areas of unfragmented rural zoned land with large separation distances to sensitive receptors for odour and noise management. Beef feedlots need adequate land resources to manage drainage water and manure disposal. All intensive animal enterprises need access to an adequate reliable water supply.

Secondary industries

The Northern Slopes and Tablelands is serviced by sale yards in Tamworth, Inverell, Armidale, Glen Innes, Tenterfield and Walcha which have regular weekly sales. Abattoirs are located at Tamworth and Inverell however there are also a number located outside the region at Scone, Wingham, Casino and Dinmore (QLD).

The main processors are:

Beef

- Teys/Cargill in Tamworth
- Bindaree Beef in inverell
- JBS beef abattoir in Scone.

Lamb

- Peel Valley Exporters (Thomas Foods) operate a lamb abattoir in Tamworth.

Opportunities

Growing markets for hormone growth promotant free, antibiotic free and grass fed beef and lamb.

Planning considerations

- Conserve large unconstrained areas for livestock industries and to enable intensive agriculture to manage odour and wastes.
- Agricultural land should not be alienated directly through lands being used for non-agricultural purposes and indirectly by incompatible developments on adjacent land restricting routine agricultural practices
- Deliver confidence and consistency in planning decisions to facilitate future investment into agricultural industries. The confidence to invest in agriculture is eroded by ad hoc planning decisions or uncertainty through the structure of planning instruments such as open zones and preserving non-strategic approvals and provisions. These actions introduce speculative actions which push up land prices, and promote 'land banking' discouraging and eliminating continued investment in the surrounding agricultural land and industries. Confidence in the stability and security offered by a planning instrument is critical for achieving a vision for long term industry and environmental outcomes.
- Councils should consider the costs and benefits of extinguishing 'sunset' clauses in planning instruments and allowing lapse of approval provisions to ensure that development is conducted in accordance with the planned direction.

Broadacre cropping

Broadacre cropping delivers the second highest gross value to the Northern Slopes and Tablelands at $226m (2015/16).

Distribution of broadacre crop producers by local government area

LGA	Gross Value of Production ($)	% share of NST broadacre crops	% share of NSW
Armidale Regional	$23.53m	10.4%	0.5%
Glen Innes Severn	$1.99m	0.9%	0.0%
Gwydir	$137.43m	60.8%	2.7%
Inverell	$43.71m	19.3%	0.9%
Tamworth Regional	$15.58m	6.9%	0.3%
Tenterfield	$1.45m	0.6%	0.0%
Uralla	$1.90m	0.8%	0.0%
Walcha	$0.42m	0.2%	0.0%
Total	**$226.0m**	**100.0%**	**4.5%**

Trends

Long-term productivity growth in broadacre industries around 1% per year (Boult and Chancellor 2020). This is also an analysis supported by RMCG Agricultural Expansion Analysis which identifies a plateau in wheat yields. A simplistic comparison between ABS 2010/2011 and the 2015/2016 census data shows a decline in tonnes of many broadacre crops and an increase in Pulse crop production such as chickpeas.

Locational requirements

The success of broadacre cropping in the region is the result of the higher, more reliable summer dominant rainfall and milder temperatures which allows for a wide variety of both winter and summer crops to be grown. Large tracts of unfragmented land free from land use conflict and competing land uses has facilitated confidence for continued investment in broadacre technology, equipment and plant breeding to ensure competitive and profitable enterprises.

Secondary Industries

- freight service
- grain processing
- grain storage and handling
- grain trading and marketing.

Challenges

Growers are generally facing challenges from declining soil fertility, increasing herbicide resistance, and increasing soil-borne pathogens in their farming systems while under pressure form the 'cost price squeeze' (https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2018/07/farming-systems-spring-ridge-northern-nsw).

Advances in plant breeding, machinery/technology development, improved agronomic practices are testing the maximum production rates. Without increases in production, every hectare of agricultural land is valuable to maintain a critical mass of primary product, particularly those such as in the Northern Slopes and Tablelands which have a capacity to support a diverse range of crop types. For the Northern Slopes and Tablelands to maintain its current economic base, every hectare of productive agricultural land is important; along with opportunity to capitalise on improving quality to increase gross value of product. Opportunities may also lie in focused marketing to attract a high price premium from nutrient content, GM free, organic, environmentally sustainable production, or other value added premium niche.

Opportunities

The Northern Slopes and Tablelands, NSW and more broadly Australia is well positioned to capitalise on premium market opportunities to increase gross value of broadacre crops. These premium opportunities lay in niche premium product marketing of environmentally friendly production, nutrient content, GM free, and organic products. Australia is home to the world's largest area of certified organic land – around 51% of the global total and 49% of shoppers say personal health is the top reason they purchased organic products (Australian Organic Market Report 2019).

Opportunities to maintain capital investment, global market access and most importantly improve farm productivity may also lie in the use of natural capital as a framework to direct investment in planning and industry. The concept of natural capital ensures that long term soil, air, water, flora and fauna health are adequately valued to ensure long term food, fibre, water, health, energy and climate security.

There may be opportunity in getting soil microbiology to do more work for crop production. This is an area that is yet to be fully quantified however, should be investigated.

Planning Considerations

- ensure large holding sizes are maintained
- ensure no fragmentation in holding distribution to minimise land use conflict
- ensure that access to water resources is maintained.

Poultry

Poultry meat is ranked the fourth largest GVP industry in the Northern Slopes and Tablelands. Poultry meat production is a significant industry generating $99.2m (ABS 2015/16).

Locational requirements

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

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

Processing facilities and markets

The poultry meat industry developed in the Northern Slopes and Tablelands due to its favourable climate, proximity to grain from cropping, secure water and open space and location away from urban areas. Grower farms need to be within approximately two hours of processing plants to ensure that birds are not transported long distances. The major processing plants are in Tamworth.

Feed source

The industry is dependent on a cheap and reliable source of feed availability.

Utilities and Infrastructure

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

Biosecurity

Biosecurity issues can arise if there is a concentration of producers in close proximity. The industry recommends that poultry farms are located at least 1km from each other to ensure that diseases do not spread rapidly.

Secondary industries

The industry requires some specialised ancillary industries such as clean out contractors, wash out contractors and transport/ haulage firms. Other supporting industries are also required such as tradespeople and rural suppliers.

Processing

There is only one major poultry meat processing facility in the Northern Slopes and Tablelands, Baiada Poultry abattoir in Tamworth.

Feed and transport

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

Challenges

Land use conflict

Land use conflicts with sensitive neighbouring land uses is the primary challenge for the poultry industry. To expand, producers will need to either increase the number of sheds on farms or develop new farms. This expansion is restricted by a lack of suitable land in proximity on which to expand. Implementing measures to prevent land use conflict through land use planning tools such as increasing minimum holding sizes that attract dwelling entitlements in the rural zone reduces the density of sensitive receptors and land fragmentation.

Opportunities

Circular economy/by-product use

The poultry industry provides an organic product which is in high demand for organic farming and soil ameliorant. The industry may use sawdust by-product from the timber industry as a shed litter.

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.

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