

**Submission
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FOOD PRODUCTION AND SUPPLY IN NSW

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Executive summary

New South Wales has an excellent reputation for producing safe, healthy and high-quality foods. We produce enough food to satisfy domestic needs and for a strong export trade. The sector makes a significant contribution to the NSW economy and in 2020-21, the NSW primary industries' resource base produced \$17.6 billion in gross value of production. This represents a significant rebound in production compared to previous years and is a testament to the resilience and productivity of our state's primary producers.

This strong food producing position is underpinned by the NSW Government's ongoing investment in systems, programs and research to support the sector to:

- prevent, prepare for and respond to biosecurity threats to production and market access
- adapt to a changing climate
- produce safe, premium quality, and novel foods
- prepare for and recover from natural disasters and other emergencies
- develop and access the workforce of the future, and
- preserve our natural resource base.

While NSW is considered to be largely food secure, some regional, remote and vulnerable communities are at risk of food insecurity. The Government actively supports Aboriginal communities to address food insecurity issues, provides food relief to vulnerable communities, and works to improve food access and production in regional NSW.

Experience through the COVID-19 pandemic has shown that our food production and supply capabilities face some risks. For example, there is a need for continued efforts to attract, train and retain the food sector workforce. We have also seen supply chain pressures, caused by international freight disruption, contribute to rising costs for some key agriculture inputs such as fuel, fertilisers and pesticides, which can have flow on effects on food prices.

The NSW Government is working closely with the industry to support resolution of these challenges and is also advocating for solutions to these and other issues at the national level, for example through leading the development and implementation of the National Agriculture Workers Code, providing rebates to assist farmers manage their pests and securing funding to cover half the costs of quarantine for seasonal workers.

Food production and supply industries have faced serious challenges in recent years, including crippling drought, bushfires, and floods. Despite these challenges, the sector remains strong and poised to capitalise on the significant opportunities on the horizon.

Improving food production, security, market access and quality control

Food production

New South Wales produces enough food to satisfy domestic needs and for a strong export trade. We have an excellent reputation for producing safe, healthy and high-quality produce from our farming and fishing systems, and processed foods from our manufacturers. Factors such as biosecurity and consumer demand for freshness, sustainability, quality and value drive the domestic production of many agricultural, fishing, aquaculture and processed commodities. NSW is a net importer of some food products and there will be a continued reliance on some imported food products because of consumer preferences and products that cannot be profitably produced domestically.

The effective management of biosecurity threats - pest, weeds and diseases - is key to NSW's productive capacity. The financial consequences of temporary or prolonged market closures due to pest or disease outbreaks can be significant. The average annual cost of invasive species to the NSW economy has been estimated at over \$7.3 billion.¹ While NSW has a strong biosecurity system in place, biosecurity detections continue to rise in both volume and complexity. In the past financial year, the NSW Department of Primary Industries (NSW DPI) investigated more than 1,140 reports of biosecurity incursions (more than 3 per day) and mounted 55 formal responses. Any one of these would have a devastating effect, for example Khapra beetle and Foot & Mouth Disease would cost the NSW economy over \$1 billion each year and African Swine Fever, which is right on our doorstep in East Timor, would cost NSW over \$200 million.

The government takes a strategic and integrated approach to manage biosecurity. Policy, regulation and the analysis of risk provide a basis for managing biosecurity through partnerships across government, industry and the community. This is a 'shared responsibility' – everyone in NSW has a duty to ensure that, so far as is reasonably practicable, a biosecurity risk is prevented, eliminated or minimised.

The NSW Government also has dedicated resources that operate to underpin and enhance R&D in the food and beverage manufacturing sector, with activities focusing on food technology development, supply chain engagement, improving industry connectivity, encouraging innovation, assisting exporters and business support.

In recent years, markets, supply chains and trade relationships have become more complex. International freight disruptions have contributed to rising costs, and in some cases, shortages of key agricultural inputs, and have significantly impacted agricultural exports.

The cost of many farm inputs has increased in 2021-22 as a result of higher prices for fertiliser, fuel, farm chemicals, equipment as well as shipping costs for imported goods.

Fertiliser is an important input to Australian farms, accounting for 11% of total cash costs on all broadacre farms on average for the 5 years to 2018–19. The cost of fertiliser has significantly increased due to high energy prices and export restrictions imposed by Russia and China.² Recently, China introduced restrictions to reduce the production of yellow phosphorus – a key raw material used in the production of glyphosate – which has contributed to the significant increase in global glyphosate prices. As a result, monthly production for September to December has been capped at 10 per cent of the production in August. There is a world-wide shortage of urea – a key input in fertiliser and an ingredient in a diesel additive used in newer diesel cars and trucks – which

¹ <https://neobiota.pensoft.net/article/58834/element/2/12/>

² <https://www.awe.gov.au/abares/research-topics/agricultural-outlook/agriculture-overview>

is expected to impact not only on the food production sector, but eventually on transport sector more broadly. The price of urea imported into Australia was 74% higher in September 2021 than the average for 2020, and the price of monoammonium phosphate (MAP) was 102% higher.

These higher input costs for farms will reduce farm profitability and may result in higher costs for consumers. However, net farm cash income is forecast to be a record \$30.6 billion in 2021–22 due to much higher production and prices.³

Some initiatives have been implemented to support the sector to transition to this changed operating environment. For example, in April 2020, the Commonwealth Government implemented the International Freight Assistance Mechanism. This is a temporary, targeted, emergency support measure to keep global air links open in the wake of COVID-19 containment measures that saw commercial passenger flights drop by more than 90 per cent almost overnight. The Australian Government has also committed \$25.7 million from 2014-2025 to help farmers gain improved access to safe and effective agricultural and veterinary (agvet) chemicals, and to assist farmers with producing food for Australia and the world.⁴

There exists an opportunity for NSW to develop its own capacity to help mitigate against these external pressures. For example, there may be opportunities to develop green chemical industries through the green hydrogen industry, as identified in the NSW Hydrogen Strategy. Green ammonia, a derivative of green hydrogen, could also be used to store renewable energy and to power heavy vehicles, ships and trains.

Food Safety

NSW's robust food safety framework contributes to economic growth and prosperity by reducing the incidence of foodborne illnesses and delivering premium-quality food for consumers in NSW, across Australia and international markets.

The NSW Food Authority works with key partner agencies to ensure effective food safety and food quality management, which underpins confidence in the state's food industry and reduces the incidence of food poisoning. The Food Authority works to ensure food produced, manufactured and sold in NSW is monitored and safe at each step it goes through – from paddock to plate.

The NSW Food Safety Strategy 2015-2021 outlines the NSW Government's commitment to food safety and quality management. The Strategy has been delivered and key successes included a 30% reduction in human illness caused by *Salmonella* representing \$196 million in avoided health care costs and productivity losses, an excellent compliance rate with food safety requirements averaging 95% across all industry sectors, and savings of \$4.5 million by reducing red tape for NSW businesses.

Under this strategy, key activities included:

- Implementing quality assurance in food-handling and food production processes to reduce foodborne illnesses.
- Educating consumers through nutritional and allergen information to ensure they can make informed choices.
- Decreasing food safety failure rate by working with poor performers.
- Collaborating with industry on R&D to deliver innovation in food technology processes.
- Working with industries, all levels of government and other jurisdictions to streamline regulation and compliance requirements for businesses.

³ <https://www.awe.gov.au/abares/research-topics/agricultural-outlook/agriculture-overview>

⁴ <https://www.awe.gov.au/agriculture-land/farm-food-drought/ag-vet-chemicals/improved-access-agvet-chemicals>

- Ensuring emergency management is responsive and provides timely recovery from foodborne illness outbreaks and biosecurity threats.
- Implementing food safety regulation that ensures the safe supply of food to domestic and export markets.
- Increasing food businesses' contributions to NSW's economic growth and prosperity.

NSW is part of a national system and has ongoing commitment to the three priority areas set by Ministers with responsibility for food regulation across the country: reducing foodborne illness; supporting public health objectives to reduce chronic disease related to overweight and obesity; and maintaining a strong, robust and agile regulatory system.

Growth of the food and beverage industry as an export

Food and beverage production is the largest component of NSW's manufacturing sector. NSW food and beverage agricultural exports grew by over 10% in 2020 to over \$4 billion, while food and beverage manufacturing exports also grew nearly 7% to \$2.3 billion. At the same time, imports also grew substantially to around \$3 billion and \$5.8 billion respectively.

The NSW Government supports companies to grow their business through the \$250m Jobs Plus incentive program, which has been developed to fast-track job creation. It is designed to help Australian and international companies enter or expand their footprint in NSW by reducing the cost of establishment, reduce financial risk or increase speed to market.

The NSW Government supports important agribusiness industries access new international markets by providing financial and non-financial support to agribusinesses to encourage export market expansion and diversification. This is achieved through collaborations between Investment NSW, the NSW DPI, the Office of Regional Economic Development and industry bodies under the Commonwealth Agribusiness Expansion Initiative. An example is the NSW Government MoU with the NSW Wine Industry Association, recognising the value of the wine sector's contribution to the economy and the communities that it supports.

Other NSW Government initiatives to export development and growth of the food and agricultural industries include:

- Going Global program
 - The NSW Going Global Food and Beverage stream has applications opening in early 2022 in its eCommerce Program for Food and Beverage to India
- Flavours of NSW zone - Fine Food Australia
 - Sydney - March 2022
 - Melbourne - September 2022
- Dubai World Expo Agrifood program
 - AgriME trade show - December 2021
 - Gulfood trade show – February 2022
 - Agrifood VIP investor and customers event - 22 February 2022

Most of the output of Australian-based food and grocery manufacturers is for the domestic market. However, international trade is growing and becoming increasingly important to the sector in Australia. This is seen as a way to diversify risk from supplying a concentrated domestic supermarket sector, and to take advantage of growth opportunities overseas. As a provider of high-quality, trusted food and grocery products, the Australian sector is positioned to capitalise on the contemporary global opportunities – rising populations, rising incomes, and growing numbers of middle-class consumers – many of them on our doorstep.

The intent of NSW Government policy making is that the State be a trusted source of high-quality, high-value products. Through undertaking and leading research and development and facilitating initiatives that encourage adding value to local produce, there is a long-term opportunity to increase the state's exports of premium and niche foods, such as alternative proteins, functional foods and beverages, new grain varieties, wine, craft beer and dairy products such as milk powder.

Support for Indigenous food and land management practices

The NSW Government is working with Aboriginal Land Councils and communities to promote Indigenous food production for domestic and international markets. These programs reinforce Aboriginal people's intellectual property rights in relation to native food and medicine. There are several programs working to grow existing or to establish new Aboriginal businesses regarding:

- cultural tours,
- bush foods and cultural fishing
- nurseries, permaculture,
- botanicals and skincare
- cultural burning and land management
- Aboriginal owned fishing and farming enterprises

Research projects to improve food production, and support pollinating species and productive fertilisers

The NSW Government invests in a range of research projects that improve the ability to produce food under a variety of climatic conditions, optimise production inputs and efficiencies, maintain the sustainable harvest of fisheries resources and support the future of the agriculture industry.

NSW DPI is the largest provider of rural R&D in Australia and has a long history of delivering pragmatic research that underpins key programs including compliance, diagnostics, emergency response and policy. NSW DPI also undertakes extensive engagement with universities and other research providers through high-level, strategic alliances and at researcher-level on collaborative projects.

There are a range of strategies and programs in place which support the bee industry and minimise the impacts from pests and diseases.

The NSW Government is collaborating with stakeholders to invest in a Honey Bee Genetic Improvement Program (Plan Bee project) to establish an evaluation system to improve the genetic performance of the Australian honey bee. The NSW Government also endorsed the Australian Honey Bee Industry Biosecurity Code of Practice, which is based on the principles of good biosecurity and helps Australian beekeepers to protect the industry from pests and diseases. The NSW Government has a Beekeeping Policy which allows beekeeping in some national parks, balanced with conservation values and the needs of other park users. There is an opportunity to promote native bee production, which is particularly important for horticulture in urban areas.

The NSW Government is also undertaking the following research projects:

- Farming systems research that increases the number of pulses in rotations to increase organic nutrient supply from N fixation and other beneficial soil biota such as arbuscular mycorrhizal fungi
- Nitrogen and water use efficient cotton production systems

- Monitoring insecticide resistance of key pests in cotton and grain
- Developing integrated pest and disease management options.

Addressing food insecurity in Aboriginal communities in remote and rural areas of NSW

Food security is defined as “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO 1996).

Household income is a predictor of food insecurity, but as income fluctuates, the degree and impact of food insecurity also changes along the continuum of being food insecure. There are significant short- and long-term impacts on physical health and social and economic participation from being food insecure, and often leads to stress, cycles of fasting and bingeing, and the substitution of relatively higher cost, higher nutrition food with lower cost, higher energy food, resulting in nutrient deficiencies, metabolic changes, weight loss or, seemingly paradoxically, overweight and obesity.

The degree of food insecurity in Aboriginal and Torres Strait Islander people has not been systematically studied, however, the research using ABS and other health data indicates these communities are at 5 to 7-fold risk of experiencing food insecurity relative to their non-Indigenous peers. The *Understanding food insecurity in Australia*⁵ report found that regional and remote communities are at greatest risk of food insecurity

During crises, the NSW Government provides short term, food relief programs, which are essential support for households who already have insufficient food supplies. Those who are food insecure who access emergency relief services have a short-term source of addressing their need for food, but food relief does not address the root causes of food insecurity. Provision of food relief to food insecure households during the COVID-19 pandemic was critical when food access and availability was further challenged with panic buying, disruption to the transport infrastructure, and the loss of income during lockdowns. The Government will continue to provide communities with food relief where it is most needed, while simultaneously addressing the complex issues that create food insecurity.

In July 2020, the NSW Government signed a National Agreement on Closing the Gap with all Australian Governments and the Coalition of Peaks to improve life outcomes for Aboriginal and Torres Strait Islander peoples across 17 socio-economic outcome areas. The National Agreement also commits governments and Aboriginal peaks to work together on priority reforms, which include a new approach to addressing food security through partnerships with Aboriginal organisations, strengthening Aboriginal community-controlled sectors to take the necessary actions, changing how government works with Aboriginal people from consultation to co-design and empowerment, and sharing data and information with communities.

In addition, the Head of Aboriginal Affairs NSW represents the NSW Government on the National Indigenous Australians Agency’s (NIAA) National Strategy for Food Security and Nutrition in Remote Indigenous Communities Project Reference Group.

The Group is tasked with developing a strategy to that aims to improve outcomes against the four food security pillars: availability, access, utilisation and stability; and includes implementation of agreed elements of the 2020 Report by the House of Representatives Standing Committee on Indigenous Affairs Inquiry into Food Pricing and Food Security in Remote Indigenous Communities Report, such as consideration of a national stores licensing scheme.

⁵ <https://aifs.gov.au/cfca/publications/understanding-food-insecurity-australia>

The NSW Government is currently examining strategies for addressing factors that create food insecurity in Aboriginal communities, including issues of access, availability, storage and knowledge. The NSW Government is looking to commence scoping a research project exploring region-specific food security issues experienced by Aboriginal communities across NSW. The project includes reviewing the appropriate role of government interventions in response to any market failures and will be undertaken using quantitative and qualitative research methods. For Aboriginal and Torres Strait Islander households to achieve food security in a sustainable and meaningful way will require long term, place-based, locally driven initiatives that help move people along the food insecurity continuum until food security becomes stabilised.

Food relief support to vulnerable community members

The Government has played an active role in identifying and responding to the needs of multicultural and vulnerable communities across NSW. These impacts particularly affected the 12 local government areas of designated as “of concern” during the 2021 COVID-19 lockdown, when issues relating to financial hardship and access to food that were present prior to the lockdown were exacerbated.

To support vulnerable members of the community during COVID, the NSW Government invested \$40 million towards the provision of food relief to those in need. By the start of December 2021, the program had supported the provision of over 65 million meals to vulnerable people, including those in isolation under health orders, international students, and those homeless or at risk of homelessness.

The NSW Government also established the \$5.5 million Emergency Relief and NGO Support Grant Program for Temporary Visa Holders and Asylum Seekers, which helped alleviate severe food insecurity for those experiencing financial hardship. The Empowering and Supporting Local Communities grants and COVID-19 grants received a high proportion of applications from organisations distributing emergency food hampers to vulnerable community members and families, which ensured that vulnerable families had access to culturally appropriate food in their local area.

Through the COVID-19 Aboriginal Community Response Grants, the NSW Government provided small grants funding to Aboriginal Community Controlled Organisations across NSW to develop and implement local solutions to support the health and wellbeing of Aboriginal people impacted by COVID-19. A number of these projects were focused on the development and delivery of local food relief programs to support Aboriginal people’s access to fresh and healthy food.

The NSW Government formed a partnership with the Australian Red Cross that provided “Extreme Hardship Support Payments” to temporary and provisional visa holders and undocumented migrants who lost their ability to earn income and were ineligible for government income support (over \$10 million in payments at 1 December 2021).

The NSW Government recently brought together grant recipients from the Empowering and Supporting Local Communities grant round to co-design solutions to local issues. This program (Community Connectors) has supported local and small ethno-specific organisations delivering emergency food relief to connect with each other, and also with wider food relief programs such as Food Bank, Oz Harvest and Good360.

NSW Government grants and support to improve food access and production in regional NSW

The NSW Government works closely with a broad cross section of the food production sector to increase the accessibility of food in regional NSW. For example, the NSW Government has supported:

- The Wilcannia food store to increase availability of accessible and affordable quality food. The Government is also seeking grants and assistance to upgrade capacity of the store to service local and outlying communities in this remote part of NSW.
- Activation of plant-based protein industry in regional NSW and investment attraction to enable it.
- Topsoil Organics in Forbes through the Regional Job Creation Fund (RJCF) to establish organic waste processing facility (to create organic fertiliser).
- Businesses in Hunter Central Coast involved in intensive farming practices (eg greenhouse and vertical farms) to access RJCF and other funding opportunities.
- The “nutraceuticals” industry (supplements and additives) in the Illawarra, including growth in plant based protein sources.
- Primary production of plants for botanical extracts used in food production.
- Development of honey processing and production site through the Bushfire Local Economic Recovery Fund.
- Greenspot Renewable Energy Hub & Industrial Park at Wallerawang.
- Funding Lithgow Emerging Economy Project to identify renewal and clean energy business opportunities in Lithgow.
- North Coast Regional Leadership Executive to minimise impact of climate change through “Transition North Coast” initiative and participation on the working group.
- Industry proposals to develop coastal catchment infrastructure to cope with high flow water events.
- Richmond Valley Regional Job Precinct to include focus on biodegradable and compostable food packaging.
- Namoi Regional Job Precinct which focuses on streamlining planning approval pathways for intensification of agriculture and value add processing.
- Development of the Special Activation Precincts in Wagga Wagga, Parkes, Moree and Narrabri which focus specifically on providing opportunities for agricultural value add, horticulture, food and beverage manufacturing and the production of agricultural inputs.
- Aquaculture industry recovery and resilience, in particular for the State’s oyster/mussel industries, through Bushfire and Storm Flood Industry Recovery Grants in 2020 and 2021
- Bega Circular Valley 2030 initiative to deliver economic, environmental and social objectives, working with local industry and agriculture to improve sustainability and value add.
- Eat more Seafood grants program is designed to increase consumption of NSW seafood, drive the value of NSW seafood through increased awareness and consumption and build industry capabilities and cohesiveness.
- Seafood Innovation Fund that provides low interest rate loans to help the NSW seafood industry to invest in assets and infrastructure that helps ensure the long-term viability of their businesses.
- Access to fresh produce for the community of Walgett through the NSW Government *Increasing Resilience to Climate Change community grant’s ‘Dharriwaa Elder’s group Water Resilient community Garden’*.

Food production in cities

It is important to preserve high productivity agricultural land near cities and maintain local supply of fresh fruit and vegetables. Loss of this land results in further travel and possible spoilage of food and increased greenhouse gas emissions impact from transport.

Food and grocery manufacturing plays a critical role in the Sydney economy and Western Sydney. Western Sydney is a food and grocery manufacturing powerhouse, generating \$17 billion in output per year and employing 24,400 workers. The region's multicultural population has given rise to numerous commercially produced products using traditional and new, innovative recipes from around the world. The Aerotropolis agri-business precinct is expected to accommodate up to 10,000 jobs by 2056, coming from within the Western Sydney area. It is strategically located in proximity of the Bradfield Airport to support the production, and value-adding, and export of sustainable, high quality fresh produce and pre-prepared consumer foods.

The NSW Government also ran peri-urban biosecurity programs to inform communities about best practice biosecurity to ensure that backyard or small urban / peri-urban farming enterprises are aware of and prepared for animal pests and diseases. By having good biosecurity and management in place, peri-urban producers can minimise the incidence of biosecurity events. The relationships and processes established by this program continue to be offered and delivered in partnership with Local Land Services in each region.

Reducing food waste and destruction

NSW is leading Australia in food waste policy and action, having set a target of net zero emission of organics waste from landfill by 2030 and introduced requirements for all households and high food-waste generating business to source separate organics. Since 2013, the NSW Government has invested \$105 million to keep food and garden organic waste out of landfill.

The NSW Government has an active interest in ensuring all industries, businesses and public are aware of the need to reduce food waste and destruction. For example, the Government is constantly looking at opportunities to reduce and reuse products from food and plant production and ensuring the legislative tools available support this activity occurring.

The Waste Less, Recycle More initiative has invested \$105.5 million since 2013 to reduce food waste and increase recycling through a range of organics programs. This includes programs to expand collection services for households and business, develop new processing infrastructure, increase food donation, reduce food waste and ensure strong markets for the recycled product.

Love Food Hate Waste NSW is the NSW Government's education platform to help households and business reduce food waste and save money on bills. Through digital platforms, partnerships, grants and national collaboration, the program is helping to educate and inform NSW communities on the challenges and environmental impacts of food waste and ways to reduce it.

Waste and Sustainable Materials Strategy 2041

The Waste and Sustainable Materials Strategy 2041 (WaSM), released in June 2021, introduced requirements for source separated organics collection services to all households by 2030, for larger food waste generating businesses to source separate food waste by 2025 and large supermarkets to report on food donation. The new requirements support ambitious goals to recover 80 per cent of all waste by 2030, deliver net zero emissions from organics waste in landfill and halve food waste by 2030.

To deliver on the targets and policy mandates, the NSW Government has committed \$69 million over five years through WaSM, starting from 1 July 2022. The funding will continue to support new collection services, processing infrastructure and infrastructure to increase food donation.

Of the 128 councils in NSW, 83 provide a green lid bin service for organics, including 43 councils that provide food organics and garden organics services. Since 2013, \$25.8 million has been

awarded to 60 projects to introduce new collection services, resulting in almost 70 per cent of NSW households having access to an organics service, up from 55 per cent in 2011, and recovering 180,000 more tonnes of organics waste a year.

The Government's Food Donation Infrastructure grants fund vans, fridges, freezers and other equipment to increase the capacity of the food relief sector to handle more donated food. They are complemented by the food donation education program which supports charities to network to improve efficiency, pool resources and increase donations from donors. Together, these programs are diverting 11,000 tonnes of quality surplus food a year from landfill for redistribution through rescue charities, the equivalent of 22 million meals.

Preserving natural resources and increasing environmental resilience

The NSW Government is committed to understanding and responding to food production impacts on the land and water and increasing the resilience of the environment to natural hazards. The Government aims to improve the quality of the natural resource base on which food production relies, including restoring important freshwater and marine habitats and rebuilding/enhancing productivity of fish stocks.

Recommendations for an Agricultural Land Use Planning Strategy

The NSW Agriculture Commissioner made recommendations for an Agricultural Land Use Planning Strategy in his report titled *Improving the prospects for agriculture and regional Australia in the NSW Planning System*. The Government is currently considering the findings and recommendations in NSW Agriculture Commissioner's report. As part of this consideration, on 1 November 2021 a draft State Significant Agricultural Land Map was exhibited for community feedback.

Improving soil resources

Soil provides essential ecosystem services that support and contribute to Australia's economic, environmental, and social wellbeing, including food and fibre production; water storage, filtration and nutrient cycling; and carbon storage. The National Soil Strategy⁶ is Australia's first national policy on soil. The Commonwealth's Interim Action Plan is supported by a \$214.9 million funding package including \$196.9 million of new funding through the 2021-22 Budget over four years to implement the National Soil Strategy.⁷

The NSW Government, principally through NSW DPI, has a broad range of soil and water RD&A projects underway in partnership with industry and stakeholders to:

- Reduce the impact of subsoil constraints
- Address hostile calcareous soils
- Reduce soil acidity and acidification
- Regenerate rangelands through the Rangelands Living Skin project
- Identify the trends and drivers in water productivity for Australian cotton farmers
- Provide rhizobial services to the inoculant manufacturing industry
- Improve plant nutrition to increase root growth in soil to improve drought resilience and recovery of pasture legumes
- Implement new cropping systems that increase water usage effectiveness (WUE) and maintain soil condition and health
- Undertake farming systems research that increases the number of pulses in rotations to increase organic nutrient supply from N fixation and other beneficial soil biota such as AMF.

These projects will lead to improved landholder capacity and adoption of improved management practices.

⁶ <https://www.awe.gov.au/sites/default/files/documents/national-soil-strategy.pdf>

⁷ <https://www.awe.gov.au/agriculture-land/farm-food-drought/natural-resources/soils>

Fishing and aquaculture

NSW Commercial fishing industry reforms have altered management arrangements with a shift to the use of Total Allowable Catch (maximum amount of a particular fish species that may be harvested) and Total Allowable Effort (maximum amount of fishing effort that may be used) determinations that are made and allocated to fishers as quota.

The new NSW Recreational Fishing Strategy includes initiatives to improve equitable sharing of fisheries resources so recreational fishers can continue to 'catch a feed'. This includes initiatives that ensure access to waterways, and support fish stocks through habitat action, fisheries management, research and stocking.

The NSW Government is also implementing Harvest Strategies across fisheries that assist to inform sustainable limits for key fish species across all harvest sectors. A harvest strategy can be developed at the species or fishery level to bring together commercial, recreational and Aboriginal fishing in an integrated fishery or stock management approach. Harvest Strategy research underpins this work which involves reviewing, developing, evaluating and implementing analytical components of harvest strategies and ecological risk assessment, including the use of decision-making tools for NSW fisheries; linking commercial, recreational and Aboriginal cultural fisheries information.

Strategies have been developed to drive aquaculture investment in NSW with streamlined approvals and best practice industry guidelines. The NSW Land Based, Oyster Industry and Marine Waters Sustainable Aquaculture Strategies take effect under the *State Environmental Planning Policy Primary Production and Rural Development (2019)*. The land and oyster strategies were updated in 2021. The strategies also include water quality protection guidelines and address the aquaculture industry's social licence to operate. For the oyster industry, lease area has been identified as Priority Oyster Aquaculture Area to protect valuable farming area for current and future generations. It is proposed that marine leases will similarly be identified as Marine Priority Aquaculture Area.

Other relevant programs include the NSW DPI Oyster Reef Restoration program, which commenced in 2018 to restore oyster reefs as habitats and breeding grounds for key species, and projects to identify aquaculture zones in the marine environment utilising the provisions outlined in the Marine Waters Sustainable Aquaculture Strategy.

Additionally, fish passage with minimal obstructions along our waterways is critical to the survival of Australian native fish and contributes to healthy coastal and marine ecosystems. The NSW Government has invested in work to remove barriers to fish passage and other aquatic species via several programs including the Marie Estate Management Strategy. This has included the removal of, or improvements to, weirs and other structures that have historically obstructed the passage of fish in large barriers estuaries, as well as providing practical guidelines to those involved in the planning, design, construction and maintenance of waterway crossings. Healthy estuarine and marine ecosystems with unhindered fish passage are critical to the fishing industry, to provide fresh seafood to the community.

The NSW DPI Fish Friendly Marine Infrastructure also encourages infrastructure owners to modify, upgrade or retrofit existing marine infrastructure and to incorporate new fish friendly designs when installing new infrastructure, such as seawalls, breakwater upgrades and waterway crossings. These new concepts lessen the disturbance and impact on marine life, incorporate design features that provide enhanced habitat in which marine life can live and help support more fish. The development of estuary-wide strategies that assess appropriateness of new domestic foreshore structures (such as pontoons and boat ramps) for private proponents, ensures sensitive habitats are not impacted by foreshore structures while reducing red tape for proponents. In addition, a project focused on the Greater Sydney Region to undertake research on jetty design features

contributes to the loss of seagrasses and development of guidelines to reduce seagrass loss which is important nursery habitat for many recreationally targeted fish species.

Marine Estate Management Strategy 2018-2028

The NSW Marine Estate Management Strategy 2018 - 2028 outlines how to protect and enhance our ocean waters, coastline and estuaries over ten years.

Initiatives 1 and 2 of the Strategy are improving water quality and enhancing coastal and marine habitats while supporting best management practice of adjacent productive land and water resources. Actions specifically focus on working with farmers to improve agricultural practices which can impact upon nearby coastal habitats and waterways. Targeted and interlinked management actions are improving the health of coastal and marine habitats and species with ongoing access and safe and sustainable boating and fishing activities, acknowledging healthy habitats are critical as fish nursery areas and enhance production of seafood.

Initiative 3 is addressing threats related to climate change through adaption planning, modelling, research and which will engaging with industry stakeholders and community with regard to consideration of species shifts, migration pathway and future needs. Planning is underway to collaborate with Federal, State and local government, as well as industry stakeholders, to implement new Blue Carbon projects to contribute to carbon sequestration.

Initiative 4 continues to deliver projects to enhance Aboriginal engagement in the management of Sea Country and access to marine resources.

Initiative 6 ensures sustainable fishing and aquaculture and implements nine actions to ensure fishing and aquaculture is managed in a way that is consistent with ecologically sustainable use while providing for the health, heritage and social benefits of fishing and seafood consumption.

To combat declines in some marine industries Initiative 8 includes Blue Economy projects and a Blue Growth Strategy to enhance skills and opportunities for employment in new / innovative marine industries to facilitate sustainable growth for NSW.

Key research projects funded under the Marine Estate Management Strategy contribute to preserving productive land and water resources, manage climate change impacts and consideration of Indigenous food and land management practices:

- **Oyster reef restoration research** - Research new restoration techniques, species and benefits; and monitor the Port Stephens pilot on-ground works and initiate pre-works monitoring at Botany Bay, Hastings and Wagonga.
- **Clean coastal catchments research** - Influence behavioural change in on-farm fertiliser management through a structured approach to social research targeting agricultural industries and engagement of, and knowledge sharing with, industry advisors. Conduct applied research in nutrient and sediment management to reduce nutrient and sediment run-off in the blueberry, greenhouse vegetable, macadamia industries, and the livestock sector.
- **Innovative technology research** - Development of artificial intelligence methods for improving seagrass, mangrove and saltmarsh mapping, assessing habitat condition and changes in species composition.
- **Threats to estuarine vegetation** - Research on anthropogenic impacts to seagrass, mangroves and saltmarsh to fill knowledge gaps.
- **Threats to estuarine fish assemblages** - Research to quantify the influence of boating infrastructure, stormwater drains and natural habitats on fish assemblages and better understand potential human impacts.

- **Estuarine water quality monitoring** - Develop new indicators where relevant for integration into the Monitoring Program. Monitor and report on water quality and ecosystem health in estuaries and relevant catchments.
- **Land use pressures on the marine estate** - Monitoring the condition of gauged streams using water quality and biological indicators, stratified by different land use.
- **Cultural research and monitoring** - Develop a research, monitoring and evaluation approach that is integrated with the Aboriginal Engagement Framework and aligns with the Marine Integrated Monitoring Program.
- **Pipi harvest** - Consolidate research and implement Stage 2 of Safe and Sustainable Sea Country Harvest of Shellfish project enabling Aboriginal people to harvest pipis and consume them safely for cultural purposes.
- **Climate change on culture** - Investigate the impacts of climate change on Aboriginal communities and culture in the marine estate and develop strategies to reduce or adapt to this risk.
- **Cultural fishing monitoring** - Explore potential pathways to enable assessment of cultural fishing in NSW in terms of participation, catch and effort and relate these to access arrangements within current resource management decision making processes, including harvest strategies.
- **Climate change research** - Targeted experimental research to fill priority knowledge gaps about probable climate change impacts on environmental assets in the marine estate.

Water

Food production and processing industries are critically dependent on water. NSW's water resources are under increasing pressure from a growing population, changing industry and community needs and a more variable and changing climate. The NSW Government is planning ahead to better prepare for a future where water sources, services and supplies are likely to come under even greater stress.

The NSW Water Strategy recognises that water is essential for the health and wellbeing of all NSW citizens, the preservation of the state's natural environment and the prosperity of our economy. It is the first 20-year water strategy for all of NSW, and it will put water on the same footing as other essential state resources and services, such as transport. The Strategy focuses on improving the security, reliability, quality and resilience of the state's water resources.

The NSW Water Strategy Implementation Plan 2021-2022 provides an outcomes-focused annual delivery plan that gives a high-level, realistic outline as to how the actions in the Strategy will be delivered over the next 12 months. The NSW Water Strategy will be formally evaluated and updated at least every five years. Implementation Plans under the Strategy will be developed and reported on annually.

The NSW Water Quality Objectives set the standard for water quality in all waterways across NSW and ensure that these align with community expectation and uses. This includes our inland and coastal rivers, lakes, and estuaries that drain to the marine estate.

Water Sharing Plans ensure water is available for the environment to reduce the impact of water extraction on habitats and species.

Coastal Management Programs delivered under the *Coastal Management Act* and SEPP also ensure water quality is maintained for the environment and where possible improved.

Managing the impact of climate change

Climate change will have pervasive and long-term implications for NSW with significant impacts on social, economic, ecological and cultural values, such as our food production and supply systems. Future growth of food production needs to be able to withstand shocks and disruptions caused by external factors such as climatic conditions or market pressures. The NSW Government is involved in a range of projects to address the impact of climate change and variability on primary industries. These include:

- Tropical pastures research project that trials various pasture varieties to determine potential tolerance to increased temperatures.
- Improved plant nutrition to increase root growth in soil to improve drought resilience and recovery of pasture legumes
- Research on the potential of perennial grains to provide grain and fodder to cater with variable climate
- Variable wheat and other grain phenology to explore potential for climate variability
- Breeding new chickpea varieties that have increased water-use efficiency and more stable yields in drought years but also increased disease resistance for wet years
- Research to reduce the impact of key cereal diseases especially crown rot under late drought conditions
- New cropping systems that increase water usage effectiveness and maintain soil condition and health
- Selectively bred Sydney Rock Oysters for disease resistance, faster growth and climate change variability

NSW and ACT regional Climate Model – NARCLiM

NARCLiM (NSW and ACT Regional Climate Modelling) is a NSW Government led partnership that provides high resolution climate change projections across NSW. NARCLiM projections were first delivered in 2014 in response to a need expressed by regional decision makers and impact assessment researchers for high resolution climate change projections. The 2014 NARCLiM projections produced robust regional climate projections that can be used by the NSW and ACT community to plan for the range of likely future changes in climate. These projections have no informed major strategic planning initiatives such as the NSW State Infrastructure Strategy (2018 – 2038), Future Transport 2056, Greater Sydney Region Plan, NSW State Level Emergency Risk Assessment, and regional water strategies. Climate Change Snapshots provide NARCLiM data and climate impact information to assist local government, business and the community to build resilience to and minimise the impacts of climate change.

NSW Net Zero Plan Stage 1: 2020-2030

The NSW Net Zero Plan Stage 1: 2020-2030 is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade.

The plan supports a range of initiatives targeting energy, electric vehicles, hydrogen, primary industries, technology, built environment, carbon financing and organic waste.

The Plan and its related policies are expected to have significant economic benefits for New South Wales. These benefits include supporting more than 9,000 jobs and attracting up to \$37 billion worth of private investment. A significant part of this investment is expected to be spent in regional areas; for example, through the development of Renewable Energy Zones (REZs), hydrogen hubs in the Hunter and Illawarra, and carbon and biodiversity projects.

Support for regional employment opportunities will contribute toward retaining regional populations and ensure an available workforce for continued agricultural production.

Climate change adaptation strategy

In September 2021 the NSW Government announced it will develop a climate change adaptation strategy for NSW that sets out the Government's strategic approach to managing the impacts of climate change on the State.

The Government will also develop and publish biennial climate change impacts, risks and adaptation statements which set out the economic, financial and physical impacts, risks and opportunities of climate change on the State across various climate scenarios.

The adaptation strategy and the biennial and entity-specific climate change impacts, risks and adaptation statements will support the NSW Government's existing programs to improve climate change resilience across the State, and to manage key climate change opportunities and risks, including for food production and supply.

Climate Change Fund primary industries research

Through the Climate Change Fund the NSW Government has already provided \$29.2 million in funding to the NSW DPI Climate Change Research Strategy. The Strategy will invest in project and program areas that could support the primary industries sector to adapt to climate change.

The Strategy seeks to identify through research and innovation:

- Energy supply and demand solutions
- Carbon market and emission reduction opportunities, and
- Climate resilience building opportunities

The Fund has also provided over \$2.75 million in funding for the Adaptation Research Hub. The Hub was a collaboration between Government and leading universities to conduct research on the impacts of climate change, including on food production and supply.

Primary Industries Productivity and Abatement Program

The NSW Government is developing a Primary Industries Productivity and Abatement Program that aims to reduce emissions from agriculture and increase carbon sequestration in soils and vegetation.

This Program prioritises:

- commercialising low emissions technology in the dairy, wool and red meat industries, such as those technologies identified through the CSIRO-MLA partnership
- connecting small landholders, including Aboriginal landowners, to carbon markets
- underwriting project risks from trialling new approaches to carbon sequestration
- developing premium land-based carbon markets that deliver stronger environmental and social outcomes compared to traditional low-cost abatement programs.

Climate change adaptation planning for Aboriginal communities

The NSW Government is leading a 'Climate change adaptation planning for Aboriginal communities' project that uses the most up to date information and tools to work with Aboriginal communities in proactively protecting and adapting culture and heritage to climate change. This project supports cultural responsibility for decision making and acknowledges that the condition of the landscape and caring for Country is part of cultural decision making for Aboriginal people.

The NSW Government is working with Aboriginal communities to identify what the priorities are, and what is possible for, protecting landscapes and Aboriginal Cultural Heritage values from climate change in two 'pilot' areas (Narran Lakes and Worimi Conservation Lands).

NSW Regional Vulnerability Assessments process

The NSW Regional Vulnerability Assessments engaged with local and state government asset managers and service providers to consider climate change impacts to future government assets and services, and develop potential future transition pathways to a more climate-resilient future at a regional and sub-regional scale. By using local knowledge, place-based threats and response options were identified to help NSW communities to prepare for climate change. Transition pathways addressing resilient landscapes, food production and security, and agriculture were a common theme across regions, in addition to impacts to transport routes and access issues as a result of climate impacts.

The Regional Vulnerability Assessment process has informed the development of Regional Plans for NSW regions, which informs local strategic planning statements undertaken by each LGA, with the lever of zoning in the LEP. Some local strategic planning statements link regional development planning to agricultural production e.g. Wagga Wagga and Moree. There has been ongoing engagement in regional areas with partner agencies and local governments to inform strategic planning processes. NSW Regional Plans are particularly relevant in relation to land use planning, agriculture and potentially in future management of organic waste.

Climate change impacts on water resources

The Government is taking action to improve and apply our understanding of climate variability and change on water security and supplies. We are presented with a prospect of more frequent and extreme drought conditions, and projected changes in rainfall patterns, warmer conditions and increased evaporation that will impact future water availability.

Through actions in the NSW Water Strategy the NSW Government is reviewing water allocation and water sharing in response to new climate information, and seeking to improve drought planning, preparation and resilience of communities and water-dependent industries such as agriculture and other food production industries.

Resilient landscapes

A suite of projects supported by the NSW Government aim to increase the resilience of our landscapes to the impacts of climate change. Ensuring the resilience of NSW landscapes will support an ongoing productive and secure agricultural industry in NSW. An example of these programs is the Climate Risk Ready NSW, which delivers guidance, tools, and training to increase NSW Government's capacity to respond to climate change impacts. It focusses on integration of climate change into risk and asset management, investment, planning and strategic decision-making.

Government initiatives to address workforce shortages

Support for regional NSW

The 20 Year Economic Vision for Regional NSW – Refresh is NSW Government’s plan to drive sustainable, long-term economic growth in regional NSW. Principle Five under the vision is ‘A skilled labour force for current and future needs of the regions’. This includes advocating the benefits and attractions of relocating to regional NSW, including campaigns and targeted initiatives for skilled workers.

The \$10 million Regional Skills Relocation Grant (RSRG) supports businesses to assist with the relocation costs of eligible skilled workers they employ that move from metropolitan areas to regional NSW. To be eligible for funding, employers must be a business or cooperative that is operating in an industry described in the relevant Regional Economic Development Strategy as most likely to support economic growth in a region, such as agriculture or manufacturing.

The \$130 million Regional Jobs Creation Fund (RJCF) is aimed at supporting existing businesses in regional NSW to grow and, encourages interstate or overseas businesses to invest in regional NSW. The RJCF supports economic recovery from COVID-19 by co-funding business projects that create at least five new jobs in regional NSW. The RJCF supports regional investment and job creation by offering up to \$10 million in co-funding to activate or bring forward regional projects in engine, enabling or emerging engine industries.

AgSkilled 2.0

The NSW Government supports food producers to source, train and retain labour force. This includes access for regional communities to access the AgSkilled 2.0 program and accredited training. From September 2020 to November 2021, the program has committed funding to support 3,406 participants:

- 1,856 participants have commenced training
- 1,414 participants have completed training
- 104 delivery location across NSW, mainly in regional NSW.

A majority of training has been in new technology. The industry continues to provide feedback on challenges and training offered continues to evolve to meet the below challenges identified by industry.

- the lack of younger people looking to work in the sector
- attracting workers during the border closures
- weather impacting training delivery
- impacts of COVID on training delivery

Other relevant examples of Government training programs include the NSW Food Authority food handling and hygiene training program for food retailers, which are mitigating the risks of raw egg products causing food poisoning. The NSW Food Authority also supported on-site training at domestic red meat and poultry processing plants to ensure animal welfare and introduced Food Safety Supervisor training to 40,000 retail food service businesses (including restaurants, cafés, takeaway services, and pubs and clubs) to ensure food is handled safely.

Australian Native and Bush Food Units/Skillset

The NSW Government is currently participating in the consultation regarding the development of the new Australian Native and Bush Food Units/Skillset. A new accredited Australian Native and

Bush Food unit/skillset is currently being developed through SkillsImpact (Skills Service Organisation) - this project is due to be complete later in 2022.

Registered Training Organisations

The NSW Government delivers specialised education and training in agriculture and land management through the Registered Training Organisations such as Tocal College. The full time residential program continues strong performance in attracting new entrants to the industry and providing career pathways with graduates having high employment success rate.

TAFE NSW is also working with Training NSW to deliver specialised subsidised training to build the skills in some niche areas however teaching capacity, appropriate facilities or access to facilities and WHS issues are barriers.

TAFE NSW is working with Landcare NSW and the Australian Institute of Horticulture to identify courses and training opportunities for these sectors. TAFE NSW is also working with Australian Meat Industry Council, Australian Meat Processor Corporation, Australian Institute of Food Science & Technology, Baking Association of Australia, National Indigenous Culinary Institute, Australian Hotels Association, Australian Tourism Association, Le Gordon Bleu Australia to develop solutions to workforce challenges and skills development.

Aboriginal rural training program

The NSW Government runs the Aboriginal Rural Training Program that builds practical skills to work in agriculture and conservation and ecosystem management. This includes delivery of traineeships, investigating additional strategies on engagement and collaboration with Aboriginal people to create an increase in participation in primary industries with a focus on fisheries and forestry.

Overview of relevant legislation

- The **Food Act 2003** regulates the provision of food in NSW to ensure food for sale is safe and suitable for human consumption, prevents misleading conduct in connection with the sale of food, and provides for the application in this State of the Food Standards Code.
- The **Hemp Industry Act 2008** authorises and regulates the cultivation and supply of low-THC hemp for commercial production and other legitimate uses, including the provision of food supplies and products.
- The **Meat Industry Act 1978** regulates and controls the meat industry in New South Wales.
- The **Biosecurity Act 2015** provides a framework for the management of biosecurity matters such as pests, diseases, contaminants, weeds and threats to terrestrial and aquatic environments that are significant for primary production industries and community health and activities.
- The **Fisheries Management Act 1994** conserves, develops, and shares the fishery resources of the State for the benefit of present and future generations.
- The **Marine Estate Management Act 2014** provides for the management of the marine estate of New South Wales consistent with the principles of ecologically sustainable development.
- The **Biodiversity Conservation Act 2016** aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, consistent with the principles of ecologically sustainable development.
- The **Protection of the Environment Operations Act 1997** protects, restores and enhances the quality of the environment in New South Wales, and promotes the elimination of harmful wastes.
- The **Local Land Services Act 2013** and the **Land Management (Native Vegetation) Code 2018** assists in preserving land by regulating land clearing and protecting Aboriginal sites and food sources.
- The **Water Management Act 2000** provides for the protection, conservation and ecologically sustainable development of the water sources of the State.
- The **Environmental Planning and Assessment Act 1979** promotes the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.