

Department of Primary Industries
Department of Regional NSW

NSW Biosecurity and Food Safety Strategy

2022–2030



www.dpi.nsw.gov.au



Acknowledgement of Country

Aboriginal people have a spiritual and cultural connection and an inherent right to protect the land, waters, sky, and natural resources of New South Wales. This connection goes deep and has been since the dreaming. The entire landscape, including traditional lands, fresh water, and seas, has spiritual and cultural significance to Aboriginal people. If the cultural and spiritual values of Aboriginal people are sustained by providing protection, respect, quantity, and quality, then many other components of Aboriginal life will be healthy. By this understanding there is no separation of Country, culture, waters, and wellbeing. The health of the natural environment, fresh waters, land animals, marine animals and people are intimately connected.

In developing this Strategy, the NSW Department of Primary Industries (NSW DPI) acknowledges this and that Aboriginal people as the first protectors have continuously cared for Country and the natural environment of NSW for thousands of generations. NSW DPI acknowledges the custodians and honours the ancestors, the Elders both past and present and extends that respect to other Aboriginal people in NSW.

Minister's Foreword



I am pleased to present the Biosecurity and Food Safety Strategy 2022-2030 – our plan to protect the state's economy, environment, and community against growing biosecurity and food safety threats.

This new, eight-year Strategy will provide for the first time a single vision and objectives for both biosecurity and food safety in NSW.

It has never been more critical to ensure we strategically invest in our biosecurity and food safety systems, not only as we seek to drive Australia's primary industries output to \$100 billion (\$30 billion in NSW) by 2030 but also as we confront a rapidly growing global threat profile.

The risks are close by.

Four of the top five animal diseases of national concern have been detected for the first time in the Asia-Pacific region in the past three years and it is estimated there is a 42 per cent probability that Australia will experience an internationally notifiable major disease outbreak within the next five years.

A significant incident such as an outbreak of Foot and Mouth Disease could cost Australia up to \$80 billion over 10 years if not identified, contained and eradicated efficiently and effectively.

I am buoyed by our valued partnerships with key stakeholders in industry, research, government and the community who have played a key role in the development of the Strategy. I look forward to working with all our partners to implement the Strategy to maximise the outcomes of an effective and resilient biosecurity and food safety system for the people of NSW.

The Hon. Dugald Saunders MP

Minister for Agriculture

Minister for Western New South Wales



Biosecurity and food safety is a shared responsibility. It is important that the future direction - the vision, strategic objectives, and activities - is shared by those that are required to make the biosecurity and food safety system functional and strong, including government, industries, businesses, and communities.

This Strategy has been informed by our conversations and engagement with key stakeholders and key national initiatives including *Fighting plagues and predators: Australia's path towards a pest and weed-free future* (Sheppard A, Glanzig A 2021) and *Australia's Biosecurity Future: Unlocking the next decade of resilience 2020-2030* (Jarrett L, Williams G, Charnock S.), *Commonwealth Biosecurity 2030* (Department of Agriculture, Water, and the Environment, 2021), and discussions on the *National Biosecurity Strategy* (Department of Agriculture, Water, and the Environment, 2022). It also aligns with and builds upon commitments made in the *NSW Department of Primary Industries Stronger Primary Industries Strategy 2022-2030* and findings in the *NSW State of Biosecurity Report* (NSW Department of Primary Industries, 2022).

Purpose

The purpose of the NSW Biosecurity and Food Safety Strategy 2022-2030 is to:

- set a clear vision for biosecurity and food safety in NSW
- map strategic objectives for Government, industry, and the community, and
- mark key activities to guide prioritisation, decision-making, and actions at the state level.

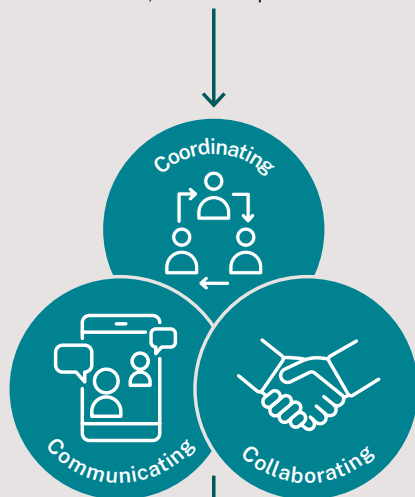
Recognising the relationships between animal, plant, environmental, and human health, this Strategy draws on the concept of 'One Health' and the interdependencies between optimal biosecurity outcomes, food safety, and economic, social, and environmental prosperity.

Vision

Working together to protect the economy, the environment, and the community from biosecurity and food-related risks.



People who protect human, animal, and environmental health, and other partners



To achieve the best health outcomes for people, animals, plants and our environment

One Health

‘One Health’ is an approach that recognises the interdependence of animal, plant, human, and environmental health and the benefit of multisector collaboration, coordination and communication when designing and implementing programmes, policies, legislation, and research.¹

This Strategy builds a plan for 2030 that contributes to:

- the continued health and safety of the NSW community
- resilient and strong NSW industries
- economic growth in NSW
- consumer and market confidence in our industries
- improved environmental outcomes, and
- plant, animal, and environmental health.

Importantly, this Strategy was developed through the continuing and valued partnerships with key stakeholders across industry, the community, and government. It builds on, and supplements existing strategies and plans, whilst recognising that NSW operates within a national framework to strengthen the national biosecurity and food safety systems.

NSW DPI is committed to continuing to work with industry groups, landholders, research bodies, governments, the private sector, health professionals and non-government and community organisations to realise the vision and implement the Strategy. Future biosecurity and food safety planning, program development, and committee functions will be focused on determining priority actions to deliver on the vision, strategic objectives and activities of this Strategy.

Our success in achieving this strategy will be monitored and reported regularly, including through the NSW State of Biosecurity Report and the NSW Food Authority Annual Report.

This Strategy will be reviewed periodically or when there is a notable change to the risks, challenges, or opportunities for biosecurity and food safety in NSW. This will ensure the Strategy remains appropriate.



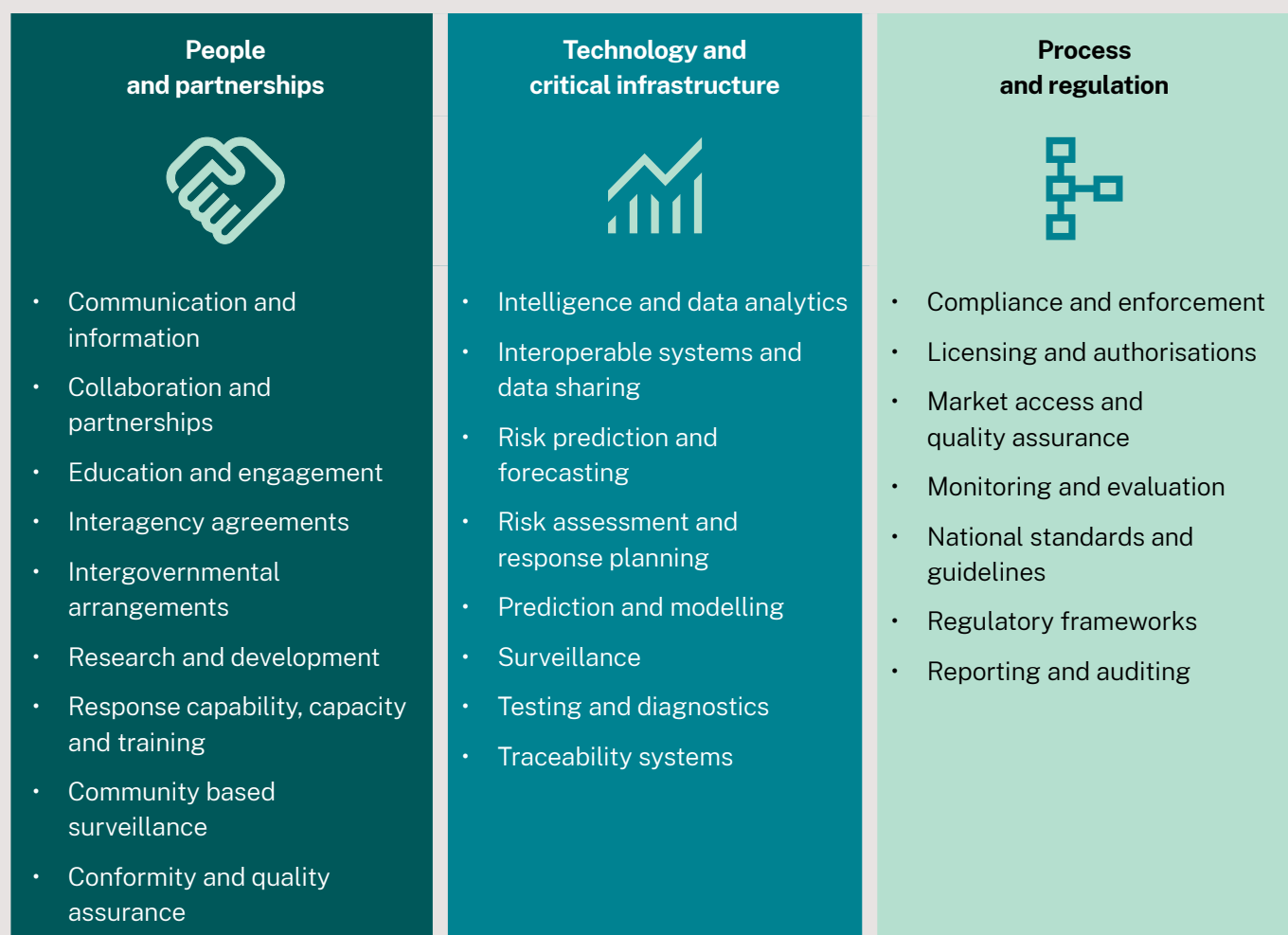
Biosecurity and Food Safety in New South Wales

Biosecurity and food safety manage risks associated with interactions between people, plants, animals, the food we eat, and our environment.

Strong and effective biosecurity and food safety is essential to the continued wellbeing of people in NSW, the prosperity of our economy and communities, the safety and sustainability of our food systems, and the health of our ecosystems.

Every day, the people of NSW depend upon our biosecurity and food safety system for: growing food, processing food, storing food, transporting food, preparing food, marketing food, sharing food, and consuming food.

The NSW biosecurity and food safety system is an integral part of the national system, embodying the description of a “multilayered, interconnected network of people, critical infrastructure and technology, partnerships, processes and regulatory activities”².



Effective biosecurity and food safety outcomes rely on the commitment of, actions by, and partnerships between industry groups, landholders, research bodies, governments, the private sector, health professionals and non-government and community organisations, including:

- government, including human health, agriculture, and environment agencies
- primary producers and agri-businesses
- food producers and businesses, including processors, retailers, and supply chain operators
- animal, plant, food, fibre, and other industry organisations, associations, and professional bodies
- non-government organisations
- third-party service providers
- tertiary education sector
- research organisations
- specialists, experts, and professionals – such as zoological and botanical experts and veterinarians
- land and aquatic and marine environment managers
- agricultural, environmental, and community groups
- Aboriginal people
- tourism and recreation businesses, and
- community.

For further details, please see page 26.

It is important to recognise that the risks posed to stakeholders are often impacted by the actions of others within the biosecurity and food safety system. That is why it is critical that we all understand our role/s and are responsible and accountable for our actions. For example;

- Eradicating or controlling an emergency animal disease outbreak is reliant on stakeholders' knowledge to make a notification, and systems available to undertake rapid diagnosis, the research available to understand the disease, and the surveillance, traceability and resource capability and capacity within government, industry, and the community to respond.
- Reducing incidents and impacts of foodborne illness such as Salmonella Enteritidis is dependent on farm businesses, processors and food retailers adopting improved food safety and biosecurity practices, the reporting to, investigating and response of any incidents by the NSW Food Authority, and ongoing research into intervention strategies to minimise public health risks.

Together we succeed

A strong biosecurity and food safety system is dependent on the commitment of and actions by all of us. Meeting the vision and goals for 2030 will take the combined efforts of industry groups, research bodies, governments, the private sector and non-government community organisations and the people of NSW.



Working together

Prevent and prepare:

Taking actions to prepare for and prevent a biosecurity and food safety threat is everyone's responsibility; reducing risk and enhancing the capacity to respond and manage an outbreak or incident. Preparedness and prevention activities undertaken by industry groups, research bodies, governments, the private sector, health professionals and non-government and front line community organisations are diverse, but they can be captured under four broad categories:



1. Education and awareness – activities and materials, often provided by government, industry bodies, research and other special interest organisations, are critical to developing attitudes, understandings, and awareness about how and why risks should be managed, whilst providing best practice, technical, and social support to contribute to improved surveillance, reporting, and early detection outcomes.



2. Planning – is a collaborative process that occurs at national, state, and local levels, as well as by businesses and on farm. The planning process facilitates the identification and assessment of risks and prioritisation of actions and mitigation measures. It is a continuous process as it must be responsive to developments, for example, in knowledge and understanding, research, and technology.



3. Governance – it is often formalised, for example, through regulatory frameworks, response agreements, memorandum of understandings, and emergency management and risk management plans. It is critical for identifying roles and responsibilities and providing accountability and transparency.



4. Training – is important for building the capability for people to understand and stakeholders to undertake their roles and responsibilities. For example, enabling authorised officers to perform their functions; staff with roles in an emergency response; abattoir, knackery and saleyard workers to detect animal disease; people working in freight, logistics, ports, industry and community groups to undertake surveillance and report pests.

Important to note, adopting best available tools and technology and sharing of information, data, and insights are key enablers across all four categories.

Response:

The combined efforts of all stakeholders are required when responding to, or seeking to, avoid or minimise the impacts of a biosecurity emergency or a food safety incident to the economy, environment, and communities of NSW.

NSW DPI is the appointed combat agency for food safety and biosecurity emergencies within NSW. In the case of human disease or poisoning NSW Health is the agency responsible for leading the investigation. As the combat agency, NSW DPI provides oversight of the emergency response through the coordination of actions, agencies, and individuals whilst providing the structures, systems, and processes to ensure effective control.

The NSW Chief Veterinary Officer is responsible for coordination of all animal (including aquatic) disease or pest response operations. The NSW Chief Plant Protection Officer is responsible for the coordination of all plant disease or pest response operations. In the event of a food safety emergency an Incident Controller is appointed by the CEO of the NSW Food Authority.

Local Land Services enhance the capacity of all landholders to plan and prepare for, respond to, and recover from biosecurity emergencies and provide resources to organise and coordinate emergency management activities including field operations, incident management, and recovery activities.

Industry has a key role in the identification and reporting of a biosecurity threat or food safety event, whilst also managing the threats posed by endemic biosecurity and food safety risks. Private veterinarians play a significant role in surveillance of emergency animal diseases and supporting emergency response activities.

Industry also participates in the development of industry standards, guidelines, and codes of practice. For example, the NSW apiary industry has played a key role in the development and adoption by industry of the NSW Beekeeping Code of Practice, a requirement for beekeeper registration in NSW. In 2022, the NSW apiary industry supported the Varroa mite incursion emergency response in a range of roles including liaison between government, industry, and the community.

An aerial photograph of a landscape. A river flows from the top right towards the bottom center. To the left of the river is a large, dense forest with green and yellowish trees. To the right of the river is a large, open grassy field. In the top left corner, there is a small cluster of buildings, including a red-roofed house. The title 'Future challenges' is overlaid in white text on the top left.

Future challenges

Australia's geographic isolation and stringent biosecurity and food safety arrangements have contributed to us avoiding many of the negative impacts felt in other parts of the world.

However, the increasing movement of people, animals, and goods that is so central to our prosperity and livelihoods also contributes to increased biosecurity and food safety threats. Combined with a changing climate and several other challenges, the global threat profile has significantly increased.

Summary of current and emerging challenges for Australia's biosecurity and food safety system:



Urbanisation - Increasingly dense urban areas can act as disease incubators and increase outbreak risks.³ Ongoing expansion of cities is changing the interaction between people, wildlife, agriculture and disease vectors, potentially increasing the risk of zoonotic diseases.⁴ Peri-urban regions can also be a source of new pest and disease risk.⁵



Growing trade and travel - Greater levels and speed of global trade, travel, and interstate freight are creating new opportunities for pests and diseases to enter and spread across Australia.⁶



Illegal trade in wildlife - The illegal importation of plants and animals into Australia poses a significant threat to both our environment and primary industries. Sophisticated smuggling techniques are being used by organisations and individuals to avoid detection.⁷ Exotic animals are potentially both new invasive species and sources of disease.



Antimicrobial and agrochemical resistance - Overuse of antimicrobials and chemicals presents an ever-growing threat. For example, Australia's current policy and guidelines to monitor or test for antimicrobial resistance in food imports and exports are at an early stage.⁸ Furthermore, responding to new incursions may be compromised by the pest or diseases' profile of pesticide resistance.



Biodiversity loss - Biodiversity loss, largely caused by human activity (e.g. land clearing, invasive species), decreases the resilience of natural environments to pests and diseases and has placed many species on the brink of extinction.⁹



Invasive species - Over 5,900 introduced plant species in Australia have weed histories overseas and are likely to naturalise here given the right conditions.¹⁰ Most were introduced as garden plants and are the driver for about 20 new weeds establishing in the environment every year.¹¹ Seventy three species of introduced vertebrates roam our continent, including 25 mammals, 20 birds, 4 reptiles, 1 amphibian and at least 23 freshwater fish.¹² Many exotic fish, snakes, amphibians, and birds also have a high risk of naturalising in Australia.¹³



Climate change - Climate change facilitates the movement of pests and disease vectors into new areas and increases the susceptibility of native species to invasive species.¹⁴ Climate change will challenge current biosecurity management practices, such as the effectiveness and the ability to deploy biocontrol agents for exotic and endemic pests and diseases.



Agricultural intensification - Greater agricultural intensification, vertical integration, and expansion into new areas can impact the resilience of ecosystems and render them more vulnerable to damage from both exotic and established species in Australia.¹⁵



Data sharing and system connectivity - Data and intelligence sharing between jurisdictions, sectors (e.g., human health, agricultural, environmental, and marine) and industry (e.g. tourism, farming, freight) is limited, reducing Australia's ability to understand and manage inter-species disease transfers and broader One Health impacts.¹⁶ Greater transparency, traceability of products, and digitised processes are necessary to support the management of biosecurity and food safety events and ensure market access.



Resourcing - The national biosecurity system is challenged by eroding budgets and declining and uneven biosecurity capability, coordination, and expertise across jurisdictions.¹⁷



Commercialisation of novel solutions - There has been a lack of investment interest, particularly from the private sector, in biosecurity technology due to small market sizes. Further, biosecurity technology deployment can be limited by a lack of underlying capabilities and skills required to implement and use these innovations.¹⁸



Social license of emerging technology - Each new technology, application or solution to improve biosecurity management will come with its own challenges to manage. For example, welfare, equity or genetic implications; social, cultural and ethical concerns; cyber security management; and understanding of unintentional impacts of genetic-based technologies.¹⁹

Food safety risks remain ever-present and evolving, including the ongoing need to mitigate the risks of endemic microorganisms. Compared to many similar countries, Australia has higher rates of human foodborne illness caused by the bacterial pathogens *Salmonella* and *Campylobacter*. It is estimated NSW bears roughly a third (\$800 million) of the national annual costs (lost productivity, direct healthcare, and premature mortality) of foodborne illness.²⁰

The scale of the economic impact of foodborne illness outbreaks, food incidents, and food recalls on industry is significant. Listeriosis is a disease caused by the bacteria *Listeria monocytogenes*. The economic impact of this outbreak contributed to an approximately 47 per cent reduction in production volumes, and an approximately 40 per cent reduction in market value of approximately \$13.1 million. In 2018, there were 22 reported cases of listeriosis in Australia linked to rockmelons, resulting in 7 deaths, and one miscarriage. The economic impact of this outbreak contributed to an approximately 47 per cent reduction in production volumes, and an approximately 40 per cent reduction in market value of approximately \$13.1 million.

In September 2018, a food tampering incident occurred in Australia involving sewing needles being inserted into Australian strawberries. This incident posed public health and safety risks and negatively impacted the trust and reputation of Australian strawberries, both domestically and internationally. The economic impact of this incident contributed to a lower product price and an approximately 9 per cent reduction in market value of approximately \$24.7 million.

Managing food safety hazards be they biological, physical, or chemical requires action at all points along the complex food supply systems from the farm to the consumer. Food safety requires actions at each stage to manage risk, whether it is actions taken on the farm, how a product is processed, how it is stored, or how it is handled by retailers and the consumer. Social-economic factors, predominantly the growing wealth divide and the cost of living, is impacting on people's choice of food.

Market access is a critical consideration in primary production, food manufacturing, and export. It can be enhanced and protected with appropriate risk management strategies. These strategies provide the market with confidence that the products are of high-quality, safe, and disease-free.

The 'cumulative burden' of responding to new biosecurity incursions every year, coupled with the year-on-year increasing costs of managing pests and diseases that have established in Australia, is already presenting a resourcing challenge.²¹ Moreover, whilst NSW has made inroads into reducing the burden of foodborne illness, the costs of foodborne illness and food incidents are still significant and ongoing.

These costs are not just borne by governments, but also the industries, businesses, and communities that must prepare for, respond to, and recover from a biosecurity or food safety incident.

Maintaining current levels of investment will result in increased burden on government and reduce industry and business sustainability into the future.



Risk factors

- Even a tripling of investment in interventions out to 2025 will still result in increased residual biosecurity risk compared to 2014-2015 levels.²²
- Border movements - Between 2012 and 2017, the annual number of interceptions of biosecurity risk materials at Australian borders rose by almost 50 per cent, to 37,014. Domestic passenger movements through Australia's capital cities are expected to double in the next fifteen years to 2030, while the volume of freight into and out of the country is expected to increase by 120 per cent over the same period.²³
- Number of introductions - Pest and disease introductions into Australia have quadrupled in the last 5 years and there is an ever increasing upward trend. In 2021, there was a 14 per cent increase in the number of reports investigated by NSW Department of Primary Industries.
- Encroaching risks - Four of the top 5 animal diseases of national concern have been detected for the first time in the Asia-Pacific region in the past three years (Foot and Mouth Disease 2022, African horse sickness 2020, Lumpy skin disease 2019, African swine fever 2018).
- Department of Agriculture, Water and Environment estimates a 42 per cent probability that Australia will experience an internationally notifiable major disease outbreak within the next 5 years.²⁴
- Projections indicate NSW will face, at a minimum, a 10 per cent increase in biosecurity responses per annum.

Impact costs

Our agricultural industries and ecosystems are threatened by an indefinite number of biosecurity threats. While quantification is difficult, modelling has identified the fiscal impact of a range of serious threats:

- In the event of a large, multi-state Foot and Mouth Disease outbreak estimated livestock industry losses of \$49.3 billion and estimated control costs of over \$80 billion over 10 years.²⁵
- An outbreak of *Xylella fastidiosa* could cost susceptible Australian horticultural industries between \$1.2 billion to \$11.1 billion over 50 years.²⁶
- It is estimated that the unhindered spread of *Varroa destructor* among honey bees would cause producers and consumers of pollination-dependent crops to lose \$0.63 billion to \$1.31 billion over 30 years, depending on the port of entry. If the port of entry and spread was Sydney, the economic loss for pollinated crop producers from an unhindered spread would be \$647 million, and consumers \$604 million.²⁷
- In the absence of the current publicly funded control measures in South East Queensland, red imported fire ants would spread up to 48 km per year, reaching Grafton in Northern NSW by 2026 and the Blue Mountains and Far Western NSW by 2035. Modelling over a 15 year period calculates the impacts to environment, health, tourism, agriculture, infrastructure, and households would reach an annual cost of \$1.2 billion.²⁸

Shared vision and objectives

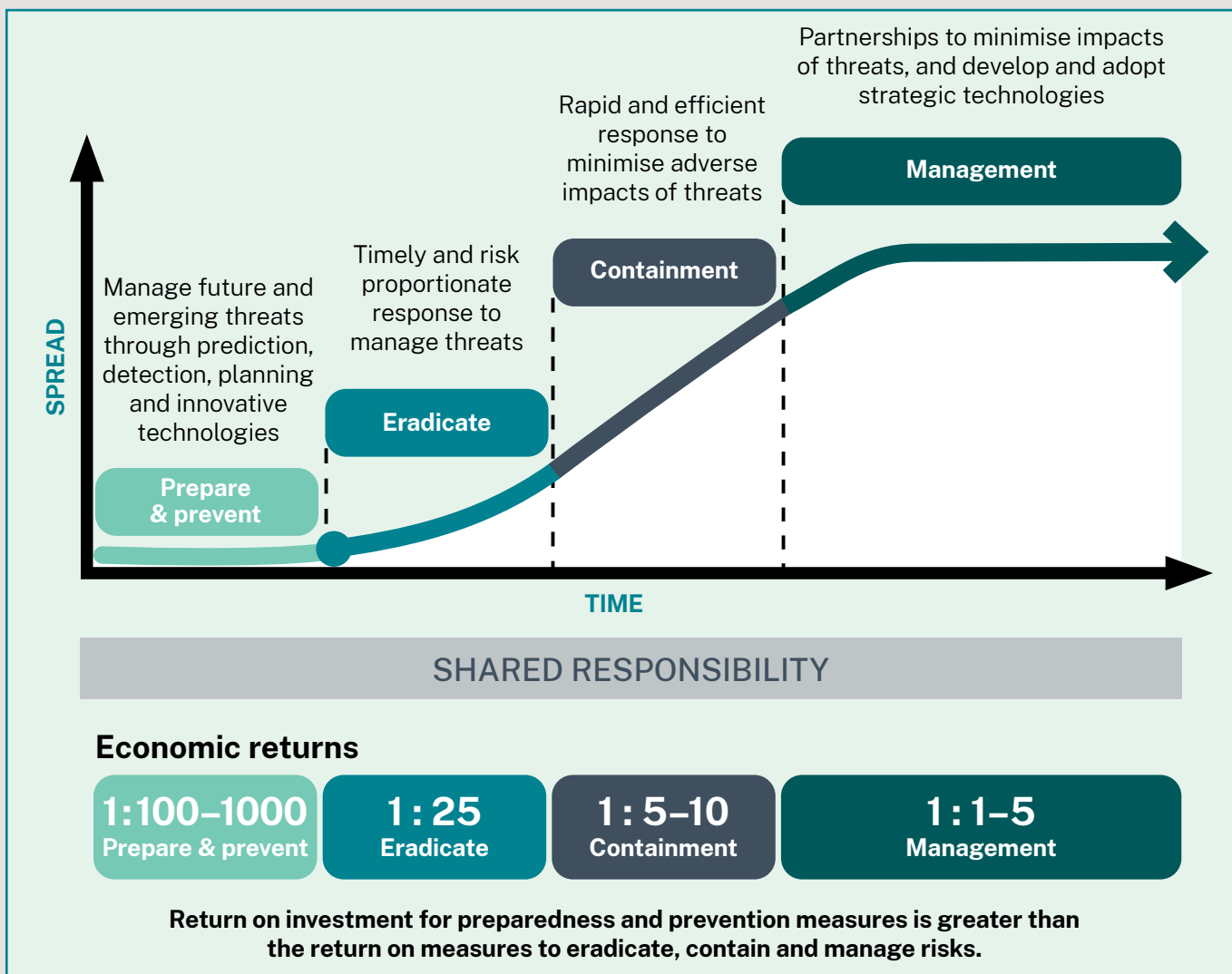


Working together to protect the economy, the environment, and the community from biosecurity and food-related risks.

Objectives

To maximise outcomes for NSW primary industries and food sector, the environment, the communities they support and the resources they rely on, both today and for the future, we must ensure four strategic objectives are met.

- ① Prepare and prevent
- ② Timely and risk proportionate responses
- ③ Rapid and efficient containment
- ④ Partnerships to minimise impacts



This Invasion curve indicates how the return on investment is greatest for activities to “Prepare & prevent” compared to those for “Management”. Each objective lists current, ongoing, and future activities that can be applicable to multiple objectives.

① Prepare and prevent

We will adopt innovative solutions to effectively manage future and emerging threats through improved prediction, early detection, and better understanding of risk pathways.

Preparedness and prevention are the most cost-effective solutions for government, industry, and community.

When biosecurity pests, weeds, and diseases, or foodborne illnesses spread, their impact and associated economic costs become much higher, and efforts to eliminate or contain them become more costly and difficult.

We must adopt and adapt the best available technologies and share data and insights so that we can better understand our risk pathways to improve biosecurity and food safety outcomes for the people of NSW.

Coordinated early intervention is key to preventing biosecurity and food safety threats from taking hold in NSW.

The *Biosecurity Act 2015* supports prepare and prevent through the General Biosecurity Duty and Biosecurity Management Plans.



Activities

- Enhance biosecurity and food safety related legislative instruments
- Effective biosecurity and food safety policies, procedures, and guidelines including the assessment of biosecurity and food safety impacts
- Support the development and understanding of Biosecurity Management Plans and the General Biosecurity Duty
- Understand and influence policy that may indirectly impact biosecurity and food safety outcomes, such as environmental or health policy
- Enhance analytic techniques to support prediction, including climate change risk assessment and response decisions
- Trained critical technical and research workforce
- Regularly assess technical and capital capacity
- Improve data quality and assets
- Improve response plans for key emergency pests, weeds, and diseases
- Prioritise risk analysis, research and surveillance through improved data sharing and analysis
- Assess and forecast impacts, such as those caused by climate change, market trends, and trade policy
- Targeted research, economic assessment, and modelling
- Advance international partnerships and cooperation
- Well informed industry, consumers, and compliance partners
- Incentivise industry best practice adoption
- Adoption of sensor technologies to boost surveillance such as at borders
- Manage biosecurity risks at borders including ports and receipt sites
- Partnerships to support surveillance and early detection practices, such as e-commerce surveillance
- Recognise the special land management roles of Aboriginal people
- Cultivate community-based action such as in surveillance and reporting
- Multisectoral response preparedness exercises
- Assist industries to innovate safely
- Ongoing research and development to identify new responsible pest and disease management innovations

② Timely and proportionate response

We will make informed and risk-based decisions to proportionately respond to biosecurity and food safety threats.

Timely and proportionate response is critical to reducing, containing and eradicating threats in an environment where these are increasing in volume, complexity, and severity.

Sharing information and working in partnership-government, industry, and community-to integrate and harmonise response activities within NSW and across jurisdictions will improve efficiency and effectiveness of a response and deliver better outcomes.

Also important are effective risk analysis processes, which ultimately inform prioritisation and appropriate resource allocation. This is central to the management of biosecurity and food safety given the number of risks that may need to be managed at any given time.

Improving traceability, combined with active surveillance and rapid diagnostics, strengthens the response capabilities while maintaining protections against biosecurity and food safety risks.

Investing in new tools, technologies, and research to detect and enable more efficient responses to threats will reduce impacts on the economy, environment, and community.

Activities

- Secure sustainable funding arrangements
- Adopt risk-based compliance approaches such as rapid triage
- Leverage expert advice, source data and evidence
- Immerse agile and iterative approaches in the management of future responses and incidents including timely communication to stakeholders
- Execute a response and incident lessons management framework
- Embed community platforms to encourage engagement and maximise reporting of risks
- Innovative surveillance and early detection approaches, such as environmental monitoring technologies, syndromic and active land water surveillance, and environmental scanning
- Bolster vaccine capability for key pests and diseases
- Targeted awareness campaign to educate livestock owners and animal handlers, and the community on clinical signs and reporting requirements, as well as how to reduce risks
- Invest in the development and manufacture of mRNA vaccines for agriculture purposes
- Enhance invasive ant surveillance and response
- Strengthen traceability frameworks by adopting unique identification and track and trace capability
- Boost response and incident training platforms
- Strengthen diagnostic systems, including laboratory capacity for the top 200 pests and diseases, and early detection and diagnostic tools, such as in-field point of care tools
- Advance solutions for reducing herbicide resistance
- Advance response and incident systems management
- Embrace data and spatial analysis and intelligence to identify emerging threats
- Increase system interoperability and data accessibility to strengthen early decision making
- Expand and invest in a capable and response ready workforce and systems including expanding emergency management capability

③ Rapid and efficient containment

We will minimise the adverse impacts of biosecurity and food safety threats on economy, environment, and community, while also maximising product integrity and market access opportunities.

Protection of our trade reputation and ongoing market access is contingent upon our capacity to contain and effectively manage risks, such as livestock export outside of the NSW bluetongue virus transmission zone and wine grape production in the Grapevine Phylloxera Biosecurity Zone. Effective multi agency and response protocols, such as early alerts and product recalls, contain food-related risks, minimise reputation damage, enhance consumer, and market confidence.

Suppressing the spread of a pest, disease, weed, foodborne illness or food incident will increase industry sustainability and opportunities, and protect product integrity, reputation, and unnecessary disruption to the complex food supply systems.

The containment of priority invasive species and, where appropriate, their eradication, is critical to the protection of biodiversity and the natural environment in NSW.

Containment is premised on continuing advances and use of emerging technologies, research, and learnings, and underpins the ongoing protection of our trade reputation and market access in many areas.

Moreover, the capability and capacity to contain incursions is a public health imperative given the potentially significant impact of zoonotic diseases and foodborne illnesses on the community.



Activities

- Formalise arrangements for multisectoral data and intelligence sharing, and governance
- Enhance agriculture and animal services response and planning capability
- Evaluation and development of containment and management strategies and standards
- Improved strategic investment framework for biosecurity
- Ongoing social research to identify community and industry attitudes, awareness, understanding, and barriers
- Reduce impacts of priority invasive species including targeted host pest animal control by:
 - Enhancing surveillance and diagnostic capacity for rapid detection including strengthening collaboration between animal and human testing and diagnostic laboratories
 - Operational response plans in place for priority emergency pests, diseases and invasive species
 - Review available distribution data for priority species to determine if containment is achievable through regulatory, extension and current technologies
- Strengthen traceability frameworks by:
 - Adopting unique identification and track and trace capability
 - Investigating interoperable data agnostic traceability systems to improve adaptability, and scalability while increasing awareness and understanding
 - Advancing a plant property identification system
 - Exploring farm contractor traceability
 - Evolving horse identification systems
 - Strengthening livestock traceability and artificial intelligence traceability systems, in particular for sheep and goats
 - Supporting the development and implementation of electronic certification systems to enable market access

④ Partnerships

We will engage stakeholders and share responsibility to minimise the impact of biosecurity and food safety threats, and develop and adopt strategic technologies.

Partnerships cut across all of the objectives however building partnerships and strong engagement are central to the concept of shared responsibility, which is embedded in the NSW *Biosecurity Act 2015* and is a key feature of our biosecurity and food safety system.

Collectively working in partnership across government, industry, research bodies, the private sector, and non-government organisations is critical to meeting the challenges of the future and addressing emerging biosecurity and food safety threats, whilst also building a productive, profitable, and sustainable NSW primary industries and food industry.

These partnerships are also critical for managing the impact of weeds, pests, and diseases on our natural ecosystems.

A shared approach between multiple stakeholders is essential for NSW to meet the scale and diversity of biosecurity management and food safety programs. Leveraging these partnerships will provide opportunities to reduce costs and increase economic, environmental, and community outcomes that will benefit every person in NSW.

Activities

- State, regional, property strategies, plans, and actions in place for highest biosecurity and food safety priorities
- Develop partnerships and arrangements to build capability and capacity of government, industry, and community through training and education, particularly in the areas of emergency animal, plant and invasive species prevention, preparedness, and response activities
- Monitor resistance to microbial and chemical controls
- Enhance research and facilitate adoption of food safety practices
- Research 'Food as Medicine' blueprint
- Establish closer partnerships and arrangements with industry, researchers, and other stakeholders
- Strong and active role in national collaborative research, development, and extension initiatives including supporting nationally agreed implementation plans
- Regular performance reporting and evaluation of biosecurity and food safety management
- Interactive digital food labelling tool and technologies to improve access to product information
- Lift food safety culture and adoption of new food safety practice
- Use artificial intelligence scans for emerging issues and triggers for preventative interventions
- Simplify regulatory auditing using 3D virtual technology
- Invest in digital tools and platforms across industry and jurisdictions to assist with traceability, performance monitoring, communications, training, and data sharing
- Supporting research to develop disease and pest resistant crops and livestock
- Automate humane predator baiting methods
- Enhance use of biological control agents
- Improve landscape management tools
- Develop disease resistant crops and approaches
- Enhance use of artificial intelligence, i.e. sensor monitoring camera systems

Key themes

The vision and the strategic objectives for 2030 are guided by three key themes:

- Capability and capacity
- Tools and technology, and
- Shared responsibility.

Capability and capacity

Building capability and capacity in the biosecurity and food safety system means investing in people, our partnerships, and our knowledge and information systems to improve performance and meet current and emerging challenges.

Ensuring policy and procedural frameworks are appropriate, robust, and responsive to innovations in technology and new management approaches is essential, as is the continued development of a highly skilled and expert workforce. We need people with the skills, knowledge, and experience to design and implement best practice interventions, and lead in research, diagnosis, preparedness, and response.

Tools and technology

Strategic investment, development, and utilisation of technologies can lead to increased efficiency and reduced economic and social costs when preparing for and responding to threats to our biosecurity and food safety. Investment in, prioritisation of, and access to the right infrastructure and technologies can improve productivity, profitability, and sustainability for farming and other commercial enterprises.

The focus is on encouraging stakeholders to look for opportunities to foster the development and rollout of novel and innovative solutions, as well as boost and build upon existing tools and technologies. Priorities will include developing and improving diagnostic and surveillance technologies; decision-making and response technologies; and tools that enable product traceability. These will improve our emergency, biosecurity and food safety management whilst supporting market access opportunities.

Shared responsibility

Everyone has a role to play and actions they can take to deliver biosecurity and food safety outcomes. We must be active participants and value the contribution that biosecurity and food safety systems make to our economy, environment, and community, for the systems to work effectively.

The focus must be on continuing to develop industry and community awareness and adoption of biosecurity and food safety practices and tools; better articulating stakeholder roles, responsibilities, accountabilities, and independencies; increasing the engagement of industry and community in the surveillance and reporting of biosecurity and food-related risks; strengthening and developing key partnerships; and championing certification schemes that underpin market access.

Outcomes



An effective and resilient biosecurity and food safety system will deliver significant value beyond the simple costs avoided or costs minimised for a response due to preparation, prevention, eradication, and containment measures. Overall it will increase the economic, environment, and community outcomes that benefit every person in NSW.

NSW's strong biosecurity and food safety status underpins our domestic and international trade in agricultural, fisheries, and forestry products; the production and quality of our food; and the operation and success of many of our businesses and industries.



Foot and mouth disease

Australia is free from foot-and-mouth disease (FMD), a highly contagious viral disease that affects all cloven-hoofed animals (cattle, sheep, pigs, goats, deer, camelids and buffalo). It can spread rapidly by contact with infected animals, on contaminated clothing and vehicles, and through the air. Australia is on increased alert for this disease following its detection in Indonesia and outbreak in Bali. An incursion of FMD would have negative animal welfare impacts and see Australia immediately locked out of export markets, shutting down livestock and product exports estimated at over \$80 billion over 10 years.²⁹



Xylella fastidiosa

Xylella fastidiosa is an exotic plant disease that is not present in Australia. However, an incursion of this disease would present a serious threat to the Australian horticulture industry; in particular, wine grape growers and winemakers are likely to be impacted the most, with losses of \$2.8 billion to \$7.9 billion over 50 years.³⁰ The National Xylella Action Plan 2019–2029 sets out a national risk-based approach to enhance Australia's ability to prevent the introduction of *Xylella* and prepare for a response, should it be detected in Australia.³¹



Reducing the burden of foodborne illness

Between 2015–2021, in partnership with stakeholders, measures aimed at addressing root causes of food poisoning were introduced in certain sectors: egg, poultry, horticulture, and food service. These measures, complemented by improved disease surveillance and NSW government investment in whole genome sequencing technology to identify outbreaks of human illness earlier to halt spread in the community, has seen the rates of foodborne illness caused by *Salmonella* decline by 32 per cent in NSW. This has resulted in estimated savings over \$60 million in health and productivity losses over the last three years and 40,000 avoided human illnesses.³² There remains work to further prevent and prepare for foodborne illness and food incidents to reduce the impacts and to help industries flourish.

Did you know?

- The NSW primary industries sector has a gross value exceeding \$20.9 billion per annum.³³
- NSW primary industries exports were \$6.6 billion in 2020-21.³⁴
- NSW primary industries employ more than 83,000 people directly and 76,000 people in the agri-food manufacturing sector, with 2,300 (40%) of the State's food processing businesses located in regional areas.
- Australia's environmental assets, or natural capital, is valued at more than \$6,413 billion.³⁵

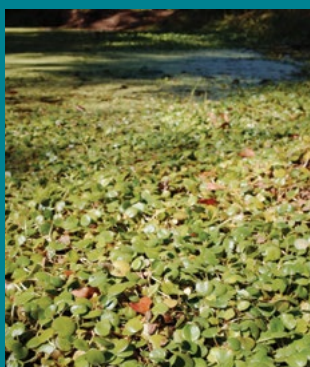
Pests, weeds, and diseases are among the biggest threats to biodiversity and the natural environment in NSW.

The establishment and spread of exotic diseases in the environment, including wildlife populations, may pose a threat to animal and plant health, compromising the health of our ecosystems. An exotic disease that is present in wildlife populations but goes undetected may also result in the pathogen becoming widespread and threatening the health of our domestic animals, livestock, and aquatic production systems. If the disease is zoonotic, it may also increase the risk to human health.



Yellow Crazy Ants

Yellow crazy ants have been recorded in Queensland, the Northern Territory and NSW. They are a highly aggressive species that can form super colonies into their billions. They spray formic acid out of their abdomen to blind and kill their prey, devastating native wildlife and plants, and upsetting entire ecosystems. They are also a threat to people, damage household appliances and wiring, and impact production.³⁶ The NSW Government with Landcare, and community volunteers are undertaking surveillance and response activities to prevent their spread and establishment in NSW.



Frogbit

Frogbit (*Limnobium laevigatum*) is a fast growing, floating freshwater weed found in several regions in NSW. Frogbit forms large dense mats across the water's surface and prevents native water plants from growing; reducing light, food and shelter for aquatic animals; blocks water systems; hides the water surface and limits recreational activities. Illegal dumping of aquarium or pond plants in waterways has led to infestations in NSW. Despite being illegal to sell, it has been found for sale in aquarium shops, at markets and online.³⁷ The NSW Government is undertaking community awareness, compliance, and eradication activities.



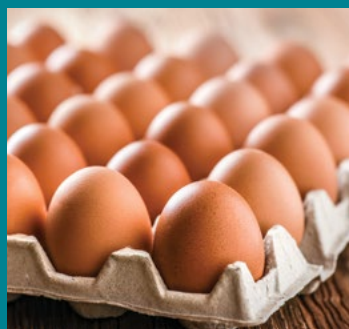
Tilapia

Recognised as one of the world's worst top 100 invasive species, the pest fish tilapia presents a current threat to the Murray Darling Basin. Its highly efficient breeding strategy and broad biological tolerances allow it to quickly establish new populations that compete with native species for food and space, prey on the eggs and young of native fish species, and damage aquatic habitats. Found in only one location in NSW, the NSW Government continues to raise awareness and establish partnerships and actions to prevent further outbreaks and any spread.

Did you know?

- Pest animals and weeds threaten more than 70 per cent of threatened species and endangered ecological communities in NSW.³⁸
- It is estimated that pest animals and weeds cost the NSW economy \$170 million and \$1.8 billion, respectively, each year in lost agricultural production and management costs.³⁹

Biosecurity and food safety risk management approaches and actions deliver benefits to communities by improving food security, reducing the risks to human health posed by zoonotic diseases, and mitigating food risks. The introduction, spread and establishment of pests and diseases into aquatic and terrestrial environments, such as carp, tilapia, and red imported fire ant, can also impact human health and social wellbeing, by limiting recreational use of the environments we enjoy. Communities are invested in and central to the operation and outcomes of biosecurity and food safety and expect that our system is efficient and effective and continually improved.



Salmonella Enteritidis

Salmonella Enteritidis is a foodborne disease that makes people sick with fever, headache, diarrhoea, nausea, and vomiting. It is carried by birds, rodents, and people, and in eggs, manure, produce, equipment, and vehicles. The first detections at poultry egg facilities in NSW occurred in 2018, with additional cases found in Victoria. Left unmanaged, this disease would have widespread impacts on people's health, on the use of fresh eggs, and loss of confidence in an industry to produce safe food.



Japanese Encephalitis

Japanese encephalitis virus (JEV) is a viral disease that can be transmitted to people and animals through the bites of infected mosquitos. The disease can impact human health and animal industries, and have socio-economic impacts. In addition to causing reproductive failures in pigs, it can cause illness in people, such as encephalitis. In 2022, cases of JEV were confirmed in NSW, Victoria, South Australia, Queensland, and Northern Territory and a national response to control JEV in production and domestic animal populations was initiated. A One Health approach was initiated with human and animal health, environmental sectors and animal industries working collaboratively.



Community detection of non-native animals

Hundreds of non-native animals have been removed from the environment as a result of the community, private veterinarians, and bushwalkers notifying government of unusual looking non-native animals, including turtles, snakes, lizards and other reptiles, mammals, birds, and amphibians. For example, hundreds of red-eared slider turtles have been removed from Sydney waterways and the hands of illegal keepers, aided by community notification. However, there is still the ongoing risk that non-native animals are being smuggled into, illegally kept, and illegally released in Australia. Non-native animals can pose a risk to our economy, environmental, and community assets, and be a danger to people.

Did you know?

Globally, over 60 per cent of emerging human infectious diseases - such as the Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome Coronavirus (MERS-CoV), swine flu and COVID-19 pandemics - originate from animals, with roughly 72 per cent of these emerging from wildlife, including feral animals.⁴⁰

Several key critical NSW government agencies support the NSW biosecurity and food safety system, including:

Department of Primary Industries (NSW DPI) - is the lead agency for biosecurity and food safety in NSW. DPI is also the combat agency for biosecurity and food safety emergencies under the NSW State Emergency Management Plan. DPI represents the NSW Government at national forums where biosecurity and food safety are discussed and coordinated. Through this engagement, NSW is a signatory to national agreements relevant to biosecurity, including the Intergovernmental Agreement on Biosecurity, the Emergency Animal Disease Response Agreement, the Emergency Plant Pest Response Deed and the National Environmental Biosecurity Response Agreement. These agreements outline the roles and responsibilities of government and industry in responding to nationally significant incursions of emergency animal diseases, emergency plant pests and diseases, and invasive species. The agreements also detail the funding arrangements for those responses.

NSW is also signatory to the inter-governmental Food Regulation Agreement 2010 to give effect to a national approach to food regulation within Australia, including providing safe food controls for the purpose of protecting public health and safety, reducing regulatory burden on the food sector, facilitating the harmonisation of Australia's domestic and export food standards (including with international and New Zealand food standards), and providing consistent policy, standards and enforcement procedures across Australia.

In addition, NSW DPI:

- has a lead role in preventing, preparing for, responding to, and recovering from emergencies and outbreaks of significant emergency pests, diseases and weeds, and foodborne illnesses and food incidents;
- has research teams that collaborate nationally and internationally to develop improved control techniques and management approaches;
- administers a registration system for beekeepers and licensing systems for recreational hunting of certain game and pest animals and for the keeping of certain permitted non-indigenous animals;

- facilitates delivery of accredited biosecurity and food safety training to promote best practice community engagement, planning and management, and
- plays a lead role in negotiating interstate market access for the products of NSW primary industries.

NSW Food Authority - a statutory authority within NSW DPI. It works with key government partners (Local Government and NSW Health) and industry to ensure food is monitored and safe – from paddock to plate. It does this by verifying that national food standards are being met, and by providing food safety advice, information, education, and assistance to industry. The NSW Food Authority has legislative responsibility to respond to food safety incidents (while NSW DPI is the combat agency in a food safety emergency). The Authority also provides educational resources for consumers, empowering them to make more informed food choices. Collectively, this provides confidence in the State's food supply and reduces the incidence of foodborne illness.

Local Land Services (LLS) – is a regionally focused NSW Government agency for delivering agricultural production and biosecurity extension, advisory, and capacity building services. With its network of biosecurity officers and district veterinarians, LLS supports and works collaboratively with landholders across NSW to implement best practice biosecurity practices on their properties to improve animal health, crop production, and control pest animals and weeds. LLS plays a leading role in the coordination of wide-scale, cross-tenure pest animal control campaigns that help reduce the impacts of pest animals on agricultural production and the environment. When it comes to weed control and management, LLS delivers regional strategic weed management plans and assists with education and community outreach programs.

Government land managers - National Parks and Wildlife Service (NPWS) - develops and implements management strategies for invasive pests and weeds, on lands managed under the *National Parks and Wildlife Act 1974*. NPWS develops, coordinates and reports on state-wide initiatives to reduce the impacts of biosecurity to the environment and biodiversity. Initiatives such as the Saving our Species program identify specific pest management actions to protect threatened species, ecological communities, and other important biodiversity assets. NPWS also works collaboratively with stakeholders at the regional

level and undertakes research into new control tools and monitors the effectiveness of invasive species management on lands it manages. **Forests NSW** and **Department of Planning, Industry and Environment (Crown Land)**, responsible for two million hectares and 34 million hectares (respectively) of public land on behalf of the NSW Government, also undertake important land and biosecurity risk management activities, including weeds and pest control.

Local Governments – have key roles in biosecurity and food safety. Local governments play a key role in biosecurity operations and coordinating biosecurity activity at the local level. Under the *Biosecurity Act 2015*, local governments (also known as local control authorities) are responsible for the implementation of priority weed control programs, including compliance, controlling weeds on council-managed lands, and providing education, training, and resources for both the public and for staff.

There is a formal partnership legislated in the *Food Act 2003* between the NSW Food Authority and local Councils to regulate food safety in the retail food service sector (restaurants, cafés, pubs, clubs) – Food Regulation Partnership (FRP). The FRP clarifies the responsibilities of local government in relation to food regulation, improves food safety coordination between councils and the Food Authority, reduces duplication of effort, enables quicker responses to food emergencies and food recalls, enables all councils to recover the costs of food regulation enforcement, and includes a comprehensive program to support and assist council roles in food regulation to build trust.

NSW Health and **Resilience NSW** are also key government partners in the delivery of biosecurity and food safety.



Land and aquatic and marine environment managers

Managing biosecurity and food safety risks on land and in aquatic and marine environments is essential to the ongoing protection of NSW. Managers have a critical role in managing risks, including risks associated with the movement of products, equipment, and people. Part of a manager's responsibility is to comply with regulations and identify, report, and manage risks. For example, having in place a biosecurity management plan and proactively managing diseases, pest animals and weeds on their land and in aquatic and marine environments.



Food producers and businesses

Food producers and businesses across the supply chain are responsible for taking all practicable steps to minimise the risk of foodborne illness and food incidents. This means making sure that the food the business produces, processes, stores, distributes, displays, and sells is safe for human consumption and correctly labelled. Effectively managing food safety risks helps to maintain businesses' brand reputation and market access opportunities.



Community

Awareness and active participation of the community is an essential component of effective biosecurity and food safety risk management, regardless of where people live. The Community is often the frontline of biosecurity preparedness and management. People of NSW can be the State's 'eyes and ears' providing early detection of biosecurity incursions and reporting incidents of foodborne illness. The community plays a significant role in the management of invasive species on their land, as well as notification of non-native animals, weed removal on public land, and the regeneration of land and aquatic ecosystems. The deep connection the Aboriginal people of NSW have with the land is vital for the protection and management of our natural ecosystems. People are also responsible for the safe storage, preparation, and consumption of food in their home and making food safe decisions when eating out and purchasing food.

Biosecurity and food safety is delivered through partnerships across government, industry, landholders, research bodies, the private sector, and non-government and community organisations.

Non-government partners include, but are not limited to, Animal Health Australia, Aqua Association Inc, Australian Association of Bush Regenerators, Australian Chicken Meat Federation, Australian Eggs, Australian Food and Grocery Council, Australian Institute of Food Science and Technology, Australian Honeybee Industry Council, Australian Livestock Exporters' Council, Australian Meat Industry Council, Australian Pork Limited, Australian Resilience Centre, Australian Veterinary Association NSW, Cattle Council of Australia, Centre for Invasive Species Solutions, Charles Sturt University, Citrus Australia, Coles, Cotton Australia, Country Women's Association of NSW, Dairy Australia, Equestrian NSW, Ethnic Communities' Council of NSW, Food Innovation Australia Limited, Fresh Produce Safety Centre Australia and New Zealand, Freshcare Limited, GrainGrowers, Greenlife Industry Australia, Horticulture Innovation Australia Ltd, Invasives Species Council, Leadbeater Group Pty Ltd, NSW Apiarists Association, NSW Aquaculture Association Inc, NSW Farmers Association, NSW Wine Industry, Nursery and Garden Industry Association NSW &

ACT, Plant Health Australia, Produce Marketing Association, Professional Fisheries Industry Association, Racing NSW, Restaurant and Catering Industry Association of Australian Inc., RiceGrowers, Royal Agricultural Societies Council of NSW Limited, NSW State Weeds Committee, NSW State Pest Animals Committee, University of Sydney, University of New England, University of Tasmania, and University of Technology Sydney.

Key government agencies include including Local Lands Services, Local Government NSW, Australian Pesticides and Veterinary Medicines Authority (APVMA), Australian Government Department of Agriculture, Fisheries and Forestry, NSW Crown Lands, NSW Department of Justice, NSW Department of Planning, Industry and the Environment (Energy, Environment and Science), NSW Environment Protection Agency, Forestry Corporation of NSW, Food Standards Australia New Zealand, NSW Health, NSW Department of Justice NSW Police (Rural Crime Prevention Unit), NSW Ports, Resilience NSW, Veterinary Practitioners Board of NSW, ACT Government, VIC Government, QLD Government, WA Government, SA Government, NT Government, and the Commonwealth.



NSW Biosecurity and Food Safety Strategy 2022-2030

Vision Working together to protect the economy, the environment, and the community from biosecurity and food related risks.



Objectives

①

Prepare and prevent

We will adopt innovative solutions to effectively manage future and emerging threats through improved prediction, early detection, and better understanding of risk pathways.

②

Timely and risk proportionate responses

We will make informed and risk-based decision to proportionately respond to biosecurity and food safety threats.

③

Rapid and efficient containment

We will minimise the adverse impacts of biosecurity and food safety threats on economy, environment, and community, while also maximising product integrity and market access opportunities.

④

Partnerships to minimise impacts

We will engage stakeholders and share the responsibility to minimise the impact of biosecurity and food safety threats, and develop and adopt strategic technology.

Themes

CAPABILITY AND CAPACITY

Investing in people, partnerships, and knowledge and information systems to improve performance and meet current and emerging challenges.



SHARED RESPONSIBILITY

Being active and working closely together to build strong biosecurity and food safety, and secure the economy, environment and the community.



TOOLS AND TECHNOLOGY

Strategic investment in tools and technologies to improve productivity, profitability, and sustainability for farming and other commercial enterprises.



Outcomes

An effective and resilient biosecurity and food safety system will deliver significant value beyond the simple costs avoided or costs minimised for a response due to preparation, prevention, eradication, and containment measures. Overall it will increase the economic, environment, and community outcomes that benefit every person in NSW.

ECONOMY



ENVIRONMENT



COMMUNITY



Appendix

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