

NATIONAL FOOD PLAN

OUR FOOD FUTURE



Australian Government



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Foreword



During the 2010 election the Gillard Government committed to developing Australia's first National Food Plan to provide a vision for our food future. The National Food Plan is a roadmap for the future of Australia's food industry.

Australia's food industry stands at a gateway to new opportunities. To take advantage of these, the National Food Plan sets out a framework that will guide the food industry, the community and governments for years to come.

From classrooms to kitchens, from fields to factories and from paddocks to Asian markets the decisions that we take individually within a food producing nation spreads across the economy and across communities.

Fifteen percent of the Australian workforce is involved in food production, we export \$30.5 billion annually and produce enough to feed the country twice over. Food creation is the biggest employer in rural and regional communities.

Consumers now have more choice and a wider appreciation of different and diverse foods than at any other time in our history. There is increased demand for food across the world and Asia's growing middle classes continue to seek higher value food products and services. Australian food is recognised as high-quality, safe and sustainable, all qualities in high demand.

The Gillard Government has been implementing a plan for Australian agriculture that first strengthens the foundation and prepares us for the future and emerging challenges. The National Food Plan is the third stage, creating new opportunities.

The National Food Plan sets out key goals to grow our domestic industry and increase the value of our food exports.

We will invest in our research and development capability so that we remain world leaders in innovation and productivity. We will work to improve access to export markets. We will build productive and collaborative relationships with our trading partners, work with our industry to tackle barriers to trade and promote Australia's brand for food. We will also work to reduce the regulatory burden for food businesses so they can remain internationally competitive.

Our food system isn't just about high yield agriculture and exports, it is also about local communities growing, preparing and sharing food. We are committed to supporting the growing numbers of farmers' markets, food sharing networks and community gardens around the country. We will also work to embed food and agriculture within the national curriculum so that our kids know where food comes from and value the hard working Australians who produce it.

The National Food Plan has been developed by the community, industry and government working together. The Gillard Government has developed it to be owned and driven by the whole nation.

Senator the Hon. Joe Ludwig
Minister for Agriculture, Fisheries and Forestry
Senator for Queensland



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Executive Summary

Food is a fundamental human need and an essential part of our daily lives. Food is more than sustenance vital for health and wellbeing—it has an important social, symbolic and economic role. Growing, preparing and sharing food is part of our family life, our culture and our society. It plays a part in our celebrations and is a source of entertainment and pleasure for many people.

Food creates employment and contributes to Australia's wealth—it is a valuable part of our nation's global trade. The foods we produce are reliant on the health of our natural resources, while the food industry also brings life and prosperity to communities across our country.

Every Australian is involved in the food system—our farmers and fishers who draw on natural resources to produce food; our people and industries who transform, transport and sell food; and our families and communities who grow, buy, cook and eat food.

Australia has a strong, safe and stable food system and high levels of food security. Every year Australian farmers and fishers produce enough food to feed around 60 million people—far more food than we consume. Australia exports over half of the food it produces yet over 90 per cent of fresh produce sold here is also produced here. Most Australians can afford to buy the food they need and can access safe and nutritious food. Our enormous range of growing conditions means that we can produce a huge variety of food and have the wealth to import food when we need or want it. We can always do better, but overall Australia is fortunate when it comes to food.

But the world is changing. In the years ahead Australia's food system will face challenges, such as climate change, population growth, changing economic conditions, competition for resources and diet-related health issues. Along with the challenges there will be unprecedented opportunities for Australia's food industry.

The rise of Asia is transforming the world. In the 21st century—the Asian century—Asia's rise will have profound effects on Australia's food system. By 2050 world food consumption is expected to be 75 per cent higher than in 2007, and almost half of this increased demand will come from China alone. Australia will never be able to put food on every table in Asia, but an expanding Asian middle class offers an important opportunity for Australia's food industry. While we will continue to be a reliable and trusted supplier of quality staple foods there is also an opportunity to supply growing markets with high-value food products that meet increasing preferences for safe, premium goods. However, the competition will be fierce and we will have to work to seize this opportunity, building on our strengths, such as our proximity to Asia and the skills and capabilities of our workforce.

Meeting the challenges and seizing the opportunities will create enormous social, economic and environmental benefits for Australia. To harvest the opportunities of the future we need to focus on four priority areas.

First, Australia must compete strongly to capture a share of these new global opportunities. We need to build on our strengths and capitalise on our advantages, growing our exports and building market share against strong competition from others. We need to work persistently to break down barriers to trade and promote open markets. Our aim is that Australian food is the food of choice globally—renowned for its quality and consistency, valued for its safety and sustainable production, and attracting premium

prices—whether staple foods like wheat or sugar or luxury items like lobsters and premium wines. But we need to move beyond just selling food to marketing our expertise in agricultural innovation and research, water and land use management, capitalising on our ability to grow food in some of the world's most difficult conditions. Australian businesses need to become more adept at understanding the needs of new customers and participate in joined-up supply chains and partnerships across the region.

Second, Australia must have a competitive and productive food industry. The industry brings food to our tables, provides one-in-six Australian jobs and is the lifeblood of many regional towns. The Australian Government wants the food industry to seize the opportunities of the Asian century and become a larger part of our national economy, providing rewarding careers for Australians and strengthening our regional communities. With world food prices predicted to flatten out or fall and the costs of increasingly scarce inputs such as land, water and energy likely to rise, the challenge will not be just growing more food but lifting our productivity—doing more with less— so that food producers can grow and remain profitable.

To achieve this we need to build on our strengths—a world-leading research capacity, a talent for innovation, reliable infrastructure and a skilled workforce— making strategic investments to support a growing industry. Our food businesses need to have the skills and access to capital that will allow them to adopt new technologies, capitalise on new opportunities and adapt quickly to changing market conditions. And they mustn't be held back by inefficient regulation.

Third, we must make sure there is food on the table at home. All Australians must have access to enough safe and nutritious food to meet their needs. The Australian Government will continue to work to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage. Beyond having enough food to eat, Australians should understand food—how it is produced; how to grow, buy and cook it; and how food choices affect our health and the Australian food system. All Australians need to be food secure and food savvy.

We also need to look beyond our shores—we are part of a global community in which around 870 million people regularly don't have enough to eat. We need to use our skills and advantages to help people in developing countries increase their capacity to grow food, lessen environmental degradation and lift themselves out of poverty. Helping our neighbours is not just part of being Australian, it is also in our national interest—food security is an important element in social and political stability in our region.

Fourth, Australia must produce its food sustainably. Our continued ability to produce food depends on having healthy natural resources. We need to work to improve our soils, use our land, water and marine resources wisely and protect Australia from introduced pests and diseases. Beyond the economic benefits we gain from our clean, green credentials, it is our obligation to ourselves and future generations of Australians.

Each of these areas is a priority for the Australian Government. We need to make progress in all of them if we are to continue to have a strong, safe food system. Success won't be immediate— some actions can start now, some need to be carefully planned, while others require constant effort and continual improvement.

To be successful we will all need to work together—governments, farmers, fishers, businesses, researchers, consumers and communities—collaborating across our food system. That's why we are establishing the Australian Council on Food to better engage with industry and community leaders and to guide the implementation of the National

Food Plan. We will also publish a State of the Food System report every five years to monitor our progress.

We have developed this plan—Australia’s first National Food Plan—to ensure our policies position the food system for the future. It provides a framework for Australia’s food system, firmly grounded on the national objectives set by the *Australia in the Asian Century White Paper*. The plan sets the long-term direction for our food system and will help us prioritise our actions and decide where to focus our resources.

To achieve our vision for Australia’s food system we have set the following 16 goals for the nation for 2025. Some of these goals are new and ambitious, while others aim to maintain our current high standards.

Growing exports

Our goals to 2025

1. The value of Australia’s agriculture and food-related exports will have increased by 45 per cent (in real terms), contributing to an increase in our gross domestic product.
2. Australia will have stronger food trade and investment relationships with countries across the region and the capabilities to promote Australian interests.
3. Australia will have a globally recognised food brand that is synonymous with high-quality, innovative, safe and sustainable food, services and technology.

How we will achieve our goals

We will continue to:

- work, through global, regional and bilateral trade agreements, to reduce trade barriers and negotiate market access to benefit Australia’s food sector
- work with Australian businesses to seize opportunities in growing markets
- help small to medium-sized food businesses sell their products overseas through trade facilitation services, including the
 - Asian Century Business Engagement Plan Grants Scheme
 - Growth Opportunities and Leadership Development Service
 - Export Market Development Grants Scheme
- promote Australia’s world-class food safety management and biosecurity systems.

We will invest:

- \$28.5 million in the Asian Food Markets Research Fund for research that tackles roadblocks to export to help businesses increase exports of food products and services to Asian markets. This includes a What Asia Wants study to identify food needs and preferences in the region.

- \$5.6 million to build on relationships with trading partners in key and emerging markets by
 - expanding the network of specialists that support agricultural trade in Asia
 - having market access liaison officers for key food sectors
- \$2 million to develop a brand identity for Australian food and related technology.

Thriving industry

Our goals to 2025

4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs.
5. Innovation in Australia's food manufacturing industry will have increased, building scale and capability through collaborations to make the most of emerging opportunities in the Asian region.
6. Australia's agriculture and fisheries workforce will have built its skills base, increasing the proportion with post-school qualifications.
7. Australia's infrastructure and biosecurity systems will support a growing food industry, moving food cost-effectively and efficiently to markets and supporting new export opportunities.
8. Participation by Australian food businesses in the digital economy will have increased, driving productivity gains and innovation and creating connections with global markets.
9. Australia will be among the top five most efficiently regulated countries in the world, reducing business costs.

How we will achieve our goals

We will continue to:

- support innovation along the food supply chain by
 - investing in our world-leading rural research and development system—currently around \$700 million annually
 - establishing a Food Industry Innovation Precinct to improve business-to-business links
 - investing \$23 million in food-related research through the first round of the Australian Research Council's Industrial Transformation Research Program
 - working with industry and state and territory governments on a national approach to biotechnology in agriculture
- support the skills and workforce needs of the food industry by

- investing \$9 billion over five years from 2012–13 through the states and territories for the National Vocational Education and Training system
 - commissioning workforce assessments of the food industry supply chain through the National Rural Advisory Council and Australian Workforce and Productivity Agency
- invest in infrastructure and biosecurity that supports our food supply chain, including
 - investing \$60 billion towards transport infrastructure through the Nation Building Program since 2008
 - investing \$5.8 billion in the Sustainable Rural Water Use and Infrastructure Program as part of the Water for the Future initiative
 - investing up to \$30.4 billion in equity to rollout the National Broadband Network, which will provide opportunities for food businesses and consumers through the digital economy
 - building a more viable, cost-effective and sustainable biosecurity system to protect the economy, the environment and our health
- support an appropriate approach to improving commercial relationships along the food supply chain and continue to consult with stakeholders about a way forward
- help regional Australia benefit from the opportunities of the Asian century by
 - investing \$8.5 million in the Northern Australia Sustainable Futures Program, which includes support for the northern Australia beef industry
 - investing \$10 million in the North Queensland Irrigated Agriculture Strategy.

We will invest:

- \$2.2 million for research and analysis of food industry trends to help business and governments plan infrastructure to support a growing industry to 2025. This research will be funded through the Asian Food Markets Research Fund.
- in appointing an experienced business leader as the Food and Beverage Supplier Advocate to encourage business-to-business links between food suppliers and their customers
- in a Productivity Commission review to identify priority areas for reform of food supply chain regulations looking from the paddock to the plate
- \$1.5 million to develop resources and provide professional development to support teaching about food and agriculture through the Australian Curriculum.

People

Our goals to 2025

10. Australia will have built on its high level of food security by continuing to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage.
11. Australia will be considered to be in the top three countries in the world for food safety, increasing the reputation of Australia's exports.
12. Australians will have the information they need to help them make decisions about food.
13. Australian children will have a better understanding of how food is produced.
14. Australia will have contributed to global food security by helping farmers in developing countries gain access to new agricultural technologies.

How we will achieve our goals

We will continue to:

- build on our high level of food security by
 - supporting a competitive local food industry and open markets
 - maintaining a strong economy and improving opportunities for employment among disadvantaged groups
 - supporting disadvantaged Australians through our social safety nets and programs, including community stores in remote Indigenous communities
- ensure the safety of our food supply, in partnership with state and territory governments and the New Zealand Government, through a scientific and risk-based regulatory approach
- improve the information on food labelling, including country of origin labelling, by implementing our response to *Labelling logic: review of food labelling law and policy*
- promote healthy behaviours and address lifestyle-related diseases, including obesity through
 - developing a National Nutrition Policy to guide future health and nutrition programs
 - investing \$932 million over nine years for the National Partnership Agreement on Preventive Health
 - investing up to \$87 million in the Aboriginal and Torres Strait Islander Chronic Disease Fund to promote healthy, active lifestyles in Indigenous communities over four years from 2013–14

- providing practical information and advice on nutrition and physical activity, including the Australian Dietary Guidelines
- investing \$18.2 million in the Stephanie Alexander Kitchen Garden National Program to develop gardens in more than 650 schools across Australia to 2015
- invest in improving global food security (\$411 million in 2013-14), including sharing research and development expertise to help developing countries produce food sustainably.

We will invest:

- \$1.5 million to support community food initiatives by providing grants to community groups to support the establishment and development of initiatives like community gardens and farmers' markets
- \$1.5 million to develop resources and provide professional development to support teaching about food and agriculture through the Australian Curriculum.

Sustainable food

Our goals to 2025

15. Australia will produce food sustainably and will have adopted innovative practices to improve productive and environmental outcomes.
16. Australia will have reduced per capita food waste.

How we will achieve our goals

We will continue to:

- support sustainable agriculture and natural resource management by
 - investing over \$600 million under Caring for our Country Sustainable Agriculture Stream over the next five years to ensure our natural resources remain sustainable, productive and resilient
 - appointing a Soil Health Advocate to raise awareness of the importance of soil health
 - implementing the Murray–Darling Basin Plan to restore our rivers to health, support strong regional communities and sustainable food production
 - investing more than \$15 billion in the Water for the Future initiative, including investment in infrastructure to improve water use efficiency (on and off the farm) and supporting irrigators and food processors position themselves for a future with less water
- address the causes of climate change and its consequences by

- introducing a carbon price through the Clean Energy Future Plan to help reduce greenhouse gas emissions, drive investment in energy efficiency and promote innovation
- investing \$429 million through the Carbon Farming Futures program to identify ways to reduce greenhouse gas emissions, store carbon in our vegetation and soils, and enhance sustainable agricultural practices
- investing \$44 million through the Carbon Energy Future Plan to support regional natural resource management organisations across Australia to plan for the impacts of climate change
- reduce food waste through the National Waste Policy, which includes a food and garden organics best practice collection manual, supermarket food waste benchmarks and national food waste assessments.

We will invest:

- \$1.5 million to support community food initiatives by providing grants to community groups to support the establishment and development of initiatives like food aid and food rescue organisations.

How we will keep on track

To guide our progress, we will:

- establish the Australian Council on Food to engage with industry and community leaders, consider long-term strategic challenges for the food system and provide advice to the government in implementing the National Food Plan
- publish the State of the Food System report every five years to highlight key information about the food system and analyse trends
- review the National Food Plan every five years to ensure we meet our food policy aims.



1 Framework for food policy

1.1 Introduction

Food is an essential part of our daily lives. It is part of Australian society—families, friends and communities meet to share and celebrate over food. Safe and nutritious food is fundamental to health and wellbeing.

Australia is a great food-producing nation and this contributes to our high level of food security. Our diverse geography and climate enable us to produce a great variety of food. Every day our farmers, fishers and food makers supply over 90 per cent of the fresh food on Australian tables. They also put food on the tables of hundreds of millions of people around the world, through food exports and by using Australian know-how to help others produce more food.

Meeting the challenges and seizing the opportunities for our food system will create enormous social, economic and environmental benefits for Australia. Informed by extensive public consultation, and drawing on the goals and principles set out in *Australia in the Asian Century White Paper* (Section 1.4), the Australian Government has developed Australia's first National Food Plan. The National Food Plan identifies our priorities and outlines the actions we will take to achieve our vision for the food system to 2025.

1.2 Role of the National Food Plan

The National Food Plan identifies what we can all do to support our food system. The Australian Government is just one of many participants in the food system, with decisions taken by individual food businesses and consumers largely guiding the direction the system takes—for example, what crops are grown, what products are sold and where to shop. State, territory and local governments also play important roles in many areas of the food system.

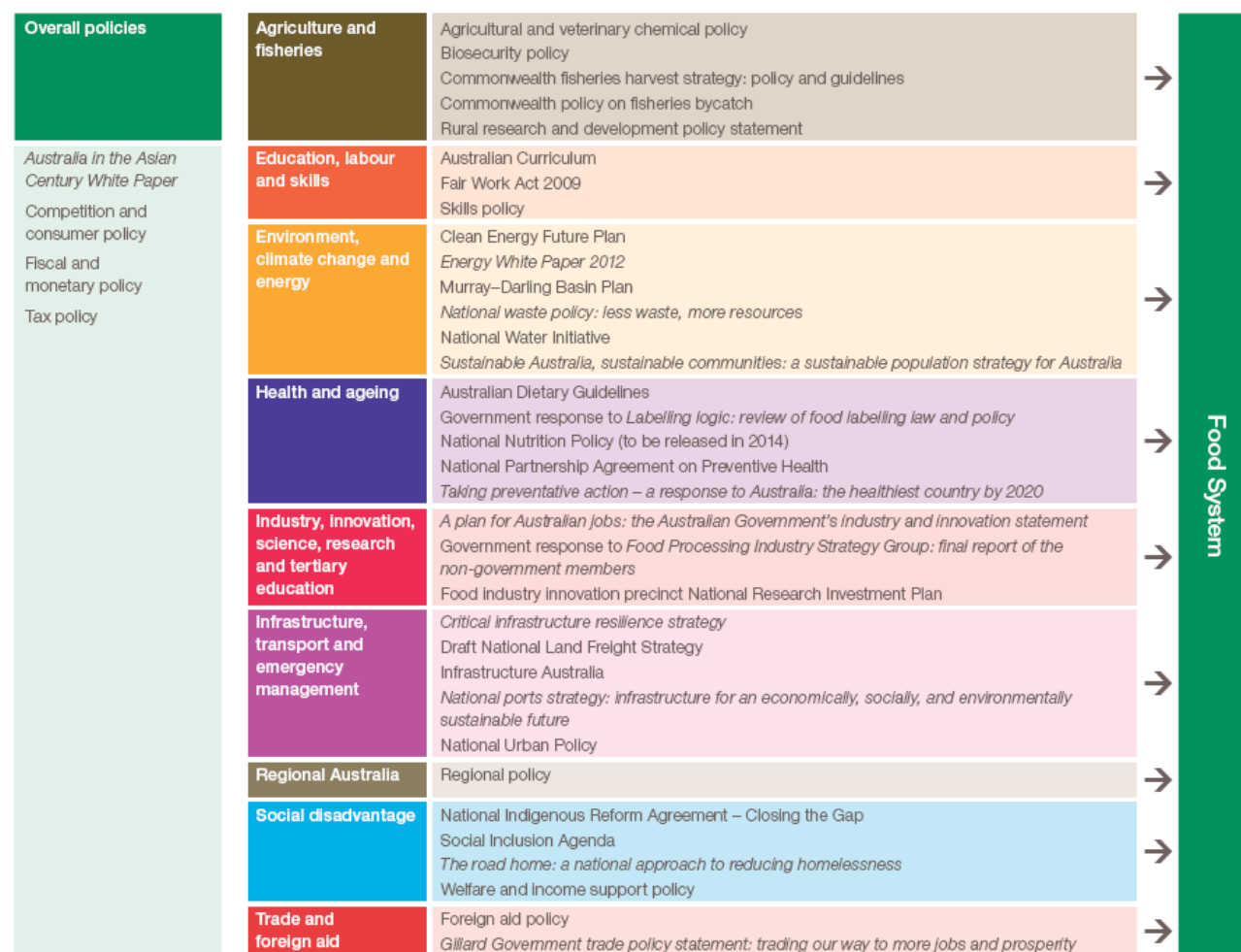
In developing the National Food Plan, we are providing leadership and articulating the direction of our food-related policies. However, to be successful, everyone—governments, farmers, fishers, manufacturers, businesses, researchers, consumers and communities—needs to work together.

Our interactions with the food system are broad, covering policy areas such as employment, workplace health and safety, agriculture, education, social disadvantage, infrastructure, health, the environment and conservation, industry and innovation, competition, business and the economy. There are intersections between the National Food Plan and other Australian Government activities and policies, as well as those of state, territory and local governments. Many of these policies apply across the whole Australian economy; for example, our economic and tax policy. Others are more specific, like the National Water Initiative. Figure 1 lists the main Australian Government policies that interact with the food system.

While food can be an important element in many issues, the role of the National Food Plan is not to solve every challenge with some connection to food. Its role is limited to ensuring that Australia has a sustainable, globally competitive and resilient food supply that supports access to nutritious and affordable food. The government deals with the broader issues through a range of policies.

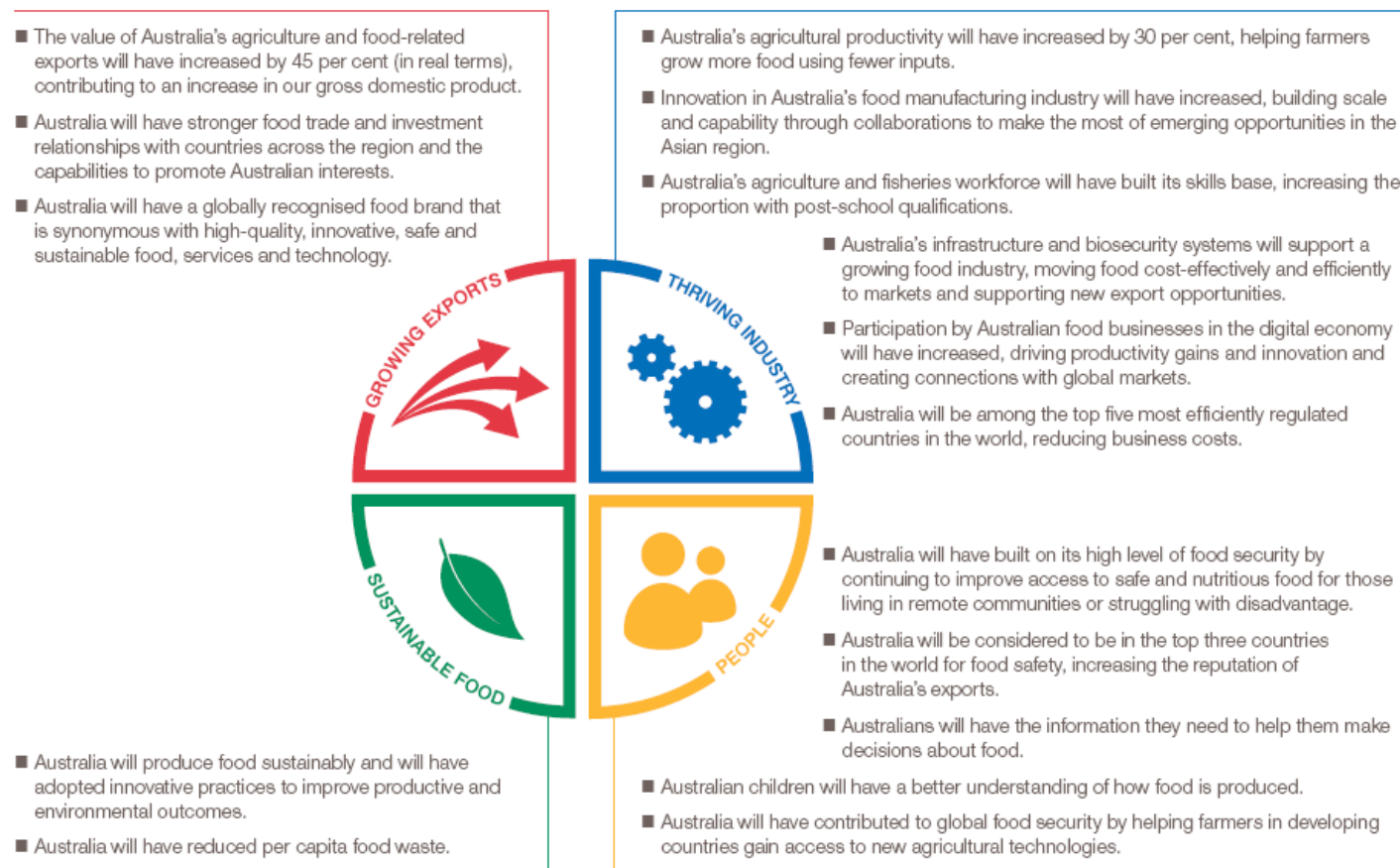
The issue of health and nutrition is significant and therefore requires a specific, strong and multifaceted focus separate from, but complementary to, the National Food Plan. To guide programs and health and nutrition policies, we are developing a National Nutrition Policy. This policy will provide a framework to address key public health nutrition issues identified within the context of the government's preventive health agenda and help guide the development of new initiatives. The framework is part of the government's specific commitment to put in place a suite of actions focused on the health and nutrition of all Australians.

Figure 1. Australian Government policies that interact with the food system



1.3 Vision to 2025

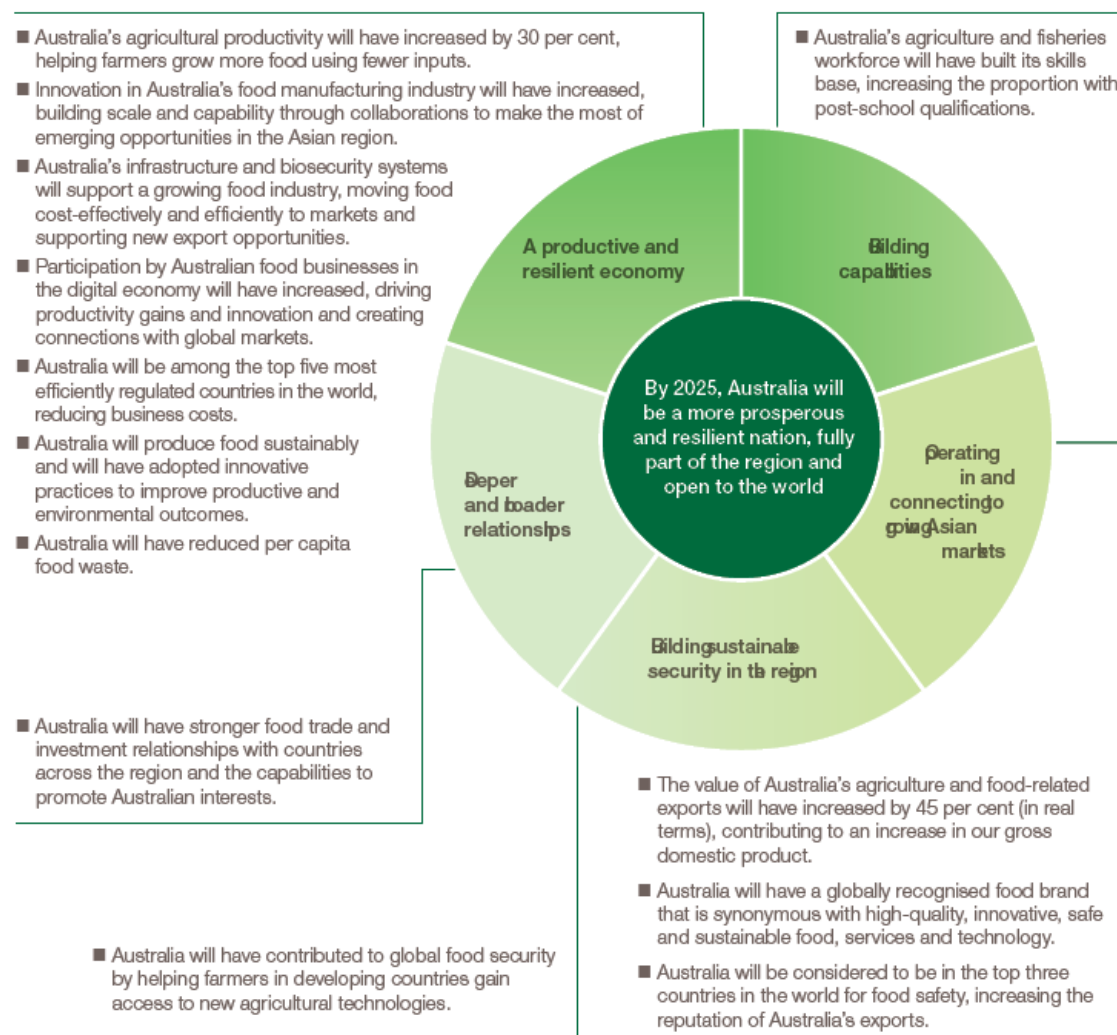
Our vision for Australia's food system is a sustainable, globally competitive, resilient food supply supporting access to nutritious and affordable food. To achieve our vision we have set goals for the nation for 2025. Some of these goals are new and ambitious, while others aim to maintain our current high standards.



1.4 Supporting the *Australia in the Asian Century White Paper*

The *Australia in the Asian Century White Paper* outlines Australia's vision and plan for how Australia will be a more prosperous and resilient nation and become fully part of the region in the Asian century. The National Food Plan provides a framework for Australia's food system, including to seize the economic opportunities that will flow with the transformation of the Asian region into an economic powerhouse. It is firmly grounded in the national objectives of the *Australia in the Asian Century White Paper*, with the goals of the National Food Plan linked to and supporting the objectives of the *Australia in the Asian Century White Paper* (Figure 2).

Figure 2. How the National Food Plan is supporting the Australia in the Asian Century White Paper





1.5 Policy principles

Australia's food system has many elements and players, and interactions between them can be complex. Positive actions in one area can have unintended negative effects in another. In such a complex system there is often no ideal solution to a problem, so it is important that we carefully weigh up the benefits and costs of our decisions and decide on the compromises we might need to make.

While we need to be flexible and responsive to changes within the food system, consistent decision-making is also important. Having policy principles can help us be consistent and manage trade-offs where a decision has an unintentional impact on the food system.

These policy principles will guide our actions in implementing the National Food Plan.

Access to enough safe and nutritious food for all Australians— Having safe and nutritious food available and making sure all Australians can access it physically and financially is a prime consideration for government.

Freedom to choose—Australians are free to make their own choices about food:

- Farmers decide the food they produce and people decide what to eat.
- We will only intervene to prevent harm or meet our international obligations.
- We will provide information so people can make informed food choices.

Sustainable production—Australia's natural resources will be managed sustainably to ensure continued food production and the wellbeing of future generations of Australians.

Vibrant industries—We strive for strong and competitive businesses that are responsive to change, open to global opportunities and provide rewarding jobs and careers. We encourage innovation, adaptability and resilience in our food industries.

Where appropriate, we will work with businesses and employees to support adaptation to changing circumstances.

Vibrant communities—Rural and regional Australia plays a central role in Australia's food industry. We will continue to work in partnership with communities, state, territory and local governments to build on our regions' unique characteristics.

Free and open markets—Free and open markets deliver overall benefits to Australians, with balanced government intervention where appropriate to address market failures.

Good global citizenship—Australia is a responsible global citizen. We contribute to global stability and recognise the benefits of open two-way trade and investment.

Evidence-based decisions—We will use the best available information on short-term, medium and long-term social, environmental and economic outcomes in making decisions. Where threats of serious or irreversible damage exist, we will not use a lack of full scientific certainty as a reason for postponing measures to prevent harm. We will examine cost-effective ways to clarify uncertainty and the risks of harm, taking account of the impacts of the decision.

Consultation and transparency—We will engage with stakeholders when developing policies that affect our food system. We will be transparent and accountable in decision-making. We will regularly review programs and report on their effectiveness.

Minimal and effective regulation—Regulations will aim to achieve the desired results with least possible regulatory burden. We will aim to harmonise regulation where it is appropriate and there is a national interest and/or shared responsibilities between jurisdictions.

1.6 Providing leadership and improving the way we work together

Working together will be essential to ensuring the success of the National Food Plan. Collaborating across the food system—from paddock to plate—will help us better tackle the challenges and embrace the opportunities.

1.6.1 Working with stakeholders across the food system

We will form the Australian Council on Food to improve leadership and stakeholder engagement on food-related policy issues. The council will not be a decision-making body and it won't replace existing consultative mechanisms. It will provide guidance to the government in implementing the National Food Plan. The council will bring together relevant Australian Government ministers, food industry leaders, public health experts and community representatives to advise on strategic priorities for food and will develop opportunities for government, industry and other stakeholders to work together.

1.6.2 Working with state, territory and local governments

State, territory and local governments play important roles within the food system. To ensure that food policy is integrated and coordinated across all levels of government we are committed to working with the states and territories on food-related policy through the Council of Australian Governments Legislative and Governance Forum on Food Regulation, the Standing Council on Primary Industries and other relevant forums. We

will also encourage strong links between the Australian Council on Food and these Council of Australian Governments forums. Key areas of collaboration the government plans to focus on are building the evidence base to assist in driving regulatory reform, working on national consistency of food standards and safety regulations, cooperating on initiatives to prepare for and recover from unexpected events that might affect our food supply, and improving the collection and analysis of land use information.

Many state and territory governments and local councils have their own food plans. We encourage these developments because they provide a clear basis for cooperation. We also recognise that Australia has diverse communities and food-producing regions. The National Food Plan supports regional and local solutions to address local issues (Chapter 4).

1.6.3 Working with you

Everyone has a role in the food system. It is in our interests to work together to ensure we have a strong food system. Our food industry—those who grow food, who fish the seas, who turn raw ingredients into things we eat and get food to Australian tables—are key players. They can help ensure we have a strong food system by adopting sustainable practices, being energy efficient, learning from research, working with the community and actively promoting the Australian food industry.

Families, communities and individuals are the real drivers of our food system. Every day Australians spend over \$371 million on food and beverages. How and where you spend your money shapes the food system by telling food producers and retailers what you value. We can all contribute by learning more about food, thinking about our purchasing decisions, making healthier food choices, planning our eating more carefully and throwing away less food.

Throughout the National Food Plan you'll find suggestions for how you can contribute. We hope that farmers, fishers, food businesses and consumers will use the plan as a basis for deciding how they can be part of ensuring Australia has a sustainable, globally competitive, resilient food supply into the future.

1.7 Keeping on track

1.7.1 Reporting on the state of the food system

We intend to publish a State of the Food System report every five years to bring together key information about the food system and how it is performing. The report will build on existing publications, such as FOODmap and Australian Food Statistics, and will include information on food production capacity, land use, composition of the workforce and food security.

Bringing this information together into a single report is an important step in strengthening the knowledge base on which decisions about our food system are made. It will provide an important resource for the Australian Council on Food as it guides the implementation of the National Food Plan. It will help foster community understanding of, and support for, our food system; and it will provide greater opportunities for the community to obtain information about the food system.

1.7.2 Reviewing the National Food Plan

To ensure we meet the aims and objectives of our approach to food policy, we plan to review the National Food Plan every five years. We'll take into account the latest information and trends in assessing our performance and the suitability of our approach to food policy. The State of the Food System report will provide the information necessary to do this.

2 Trends, opportunities and challenges

Between now and 2025 several broad trends will change the way Australia makes, distributes and consumes food. These trends will present opportunities and challenges for businesses, consumers and the community. Predicting how our economy and society will look in 2025 is challenging, but one thing is certain—it will change. Everyone in the food system has a role to play in planning for these changes.

2.1 Food demand in the Asian century

The world's population is projected to reach around 8 billion by 2025. As the world economy shifts from west to east, millions of people are likely to move out of poverty and the middle class is predicted to grow from 1.8 billion in 2010 to 3.2 billion in 2020 and 4.9 billion in 2030. A staggering 85 per cent of this population growth will be in Asia (Kharas 2010).

A larger world population with more income will increase the demand for food. The value of world food consumption is projected to be 75 per cent higher in 2050 than in 2007, an annual average increase of 1.3 per cent (Linehan et al. 2013). Demand for food is projected to increase most strongly in Asia, doubling between 2007 and 2050 (Linehan et al. 2013). In Australia, our food retail market is growing at about 3 per cent annually, and is likely to continue along a similar trend in line with population growth.

China will drive the growth in global demand for food, accounting for 43 per cent of the total increase and much of the increased demand for beef, wheat, dairy products, sheep meat and sugar. India will account for 13 per cent of growth, with a strong increase in demand for wheat and dairy products (Linehan et al. 2012).

Increased demand for food across the world will create new export opportunities for the Australian food industry. Asian food demand in particular is expected to outpace local food production, leading to higher imports to the region (Commonwealth of Australia 2012).

Rising incomes have already contributed to changes in the diets of many people in Asia, Eastern Europe and Latin America. There is greater demand for meat and processed foods rather than traditional staple grains. The food products projected to be most sought after by 2050 are beef, wheat, dairy products, sheep meat and sugar (Linehan et al. 2012). Growth in demand for these commodities is projected to increase the value of Australia's agrifood exports by 142 per cent between 2007 and 2050 (Linehan et al. 2013).

The expected increase in global food demand will influence agricultural prices. Prices are difficult to predict and are affected by factors such as resource constraints, investment levels and government policies on trade and competition. Even so, it is probable that global agricultural prices will be marginally lower than the average price from 2010 to 2012.

Global food security will remain a priority as populations continue to grow in many food-deficient countries. While we will benefit from the projected rise in the value of our exports over the coming decades, Australia is expected to only contribute about 3 per cent of the value of global food exports to 2050 (Linehan et al. 2012).

However, Australia does have significant expertise in agricultural technology, economics and policy, and we have strong educational and research institutions. This means that Australia can make a bigger contribution to global food security by providing technical assistance to developing countries (Moir & Morris 2011).

2.2 Potential constraints on growth

While these changing circumstances present growth opportunities, businesses will also contend with challenges. In export markets, our businesses will face strong competition from other food exporting nations (Port Jackson Partners 2012). Climate change and constraints of our planet's natural resources will be a continuing challenge through the 21st century.

Climate change is likely to increase the frequency of extreme weather events and create variability in seasonal patterns. These and other changes could constrain food production unless farmers and fishers adapt. Unless we adopt new approaches, climate change in Australia could reduce production of wheat, beef, dairy and sugar by around 10 per cent by 2030 (Heyhoe et al. 2007). However, the effects of climate change will vary greatly between regions and industries. In some scenarios there could be increased agricultural productivity; for example, in high rainfall scenarios for wheat, sheep and beef (Heyhoe et al. 2007).

By 2025 global food production will increasingly be affected by the availability of key inputs to production, including land, soil, energy, water, wild fish stocks and, potentially, phosphorous (Foresight 2011). In Australia, our food industry will only be able to grow if it can produce more food with the same or fewer natural resources.

Water availability is a constant constraint on Australian agriculture and on its potential for expansion, especially in dryland regions across much of the country. Climate change is projected to exacerbate the current stresses on water availability and quality caused by population growth, economic change and land use change.

While Australia has an extensive land mass, food production will compete for land with other potential uses, including urban development and mining. Competition between different land users is increasing, resulting in continual change in land use. While multiple land uses can coexist, land use planning is a complex issue that must be considered carefully in the coming decades.

Reducing food waste can contribute significantly to using our natural resources more sustainably. Even though people and businesses can save costs by reducing food waste, Australians still generate an estimated 361 kilograms of food waste for each person annually (SEWPaC 2010), and Australian households waste approximately 15 per cent of the food they purchase annually (PMSEIC 2010). Reducing this waste may save significant quantities of water, energy and other resources used to produce food that is later discarded.

Productivity growth is the key way businesses can grow and profit from new opportunities in competitive markets. It can help businesses use scarce resources, such as labour, more efficiently, offset ongoing cost pressures and maintain profits in the long run.

Productivity growth is particularly important for commodity markets such as agriculture. Productivity has long been a success story in Australian agriculture, growing at almost 2 per cent a year between the late 1970s and the 1990s; but agricultural productivity has

grown little since (ABARES 2013), due in part to widespread drought conditions over the last decade. Returning to positive rates of productivity growth will be central to maintaining the sector's long-term international competitiveness.

2.3 Strengths of our food industry

Australia has a proud history as a producer and exporter of food. Most of the fresh food consumed in Australia today—around 90 per cent—is produced here, as is the majority of processed food. In 2011-12 primary production generated annual earnings of \$42.6 billion, food and beverage manufacturing earned \$91.2 billion (2010-11) and retail \$135.8 billion. Our food supply is estimated to feed around 60 million people annually. Food exports earned Australia \$30.5 billion, 11.5 per cent of Australia's total merchandise trade. Our domestic production is complemented by imported food worth \$11.3 billion (DAFF 2013). Australia's food surplus in 2011-12, the difference between exports and imports, was \$19.2 billion, ranking us in the top ten countries in the world.

To address the key growth opportunities and constraints of the coming decades, Australia's food industry must build on its strengths. As an already successful food exporter, Australia has the ability to seize the commercial opportunities of higher world demand.

Many Australian food businesses already export to Asia, Europe and the United States. A key challenge our exporters face is the fluctuating exchange rate. The value of the Australian dollar has been high in recent years, in part because of rapid economic growth in developing countries. A high Australian dollar can reduce the competitiveness of globally exposed food businesses, but it helps consumers and businesses by reducing the price of imported products. The value of the Australian dollar is likely to remain high for the medium term.



Australia's current strengths in food production, based on the value of exports, are in raw and moderately processed products. We are also particularly successful at producing the key growth commodities of the Asian century—our largest being beef, grains and dairy products. These strengths in production build on Australia's clear advantages, including land availability, a stable business environment and a highly educated workforce. Our

geographic location can also make it easier for our businesses to work with Asia, for example by reducing transport costs.

In the coming decades Australian businesses will have opportunities to produce higher value products, be they commodities, processed foods or services. Increasingly sophisticated consumers in Asia will be seeking higher value food products and services as their wealth grows.

Our abundant and diverse food supply means that Australia's food industry can supply our population with ample nutritious food. Food is affordable for most Australians, with the average family spending only 17 per cent of its income on food, and average incomes generally rise faster than food prices. However, as in other developed countries, some Australians are not food secure and some have poor diets. Economically disadvantaged individuals and groups, including those in remote Indigenous communities, can have difficulty affording or accessing the food they need for a healthy diet.

2.4 Consumers defining Australia's food system

Consumer choices define our food system. Consumers will continue being influenced by traditional factors such as price, convenience and quality. But some people will increasingly consider other factors when buying food, such as nutritional characteristics, production methods (such as organic or free range), religious and cultural requirements, food allergens, technological innovations (such as genetic modification) and provenance. An ageing population and the increase in single-person households will also influence food choices.

Nutrition and diet are likely to be a growing influence on consumer choice. Despite availability of sufficient quantities of high-quality food, a significant number of Australians have a poor diet.

Australia is today ranked as one of the fattest nations in the developed world. Obesity in Australia has more than doubled in the past 20 years. Nearly two-thirds of Australian adults were estimated to be either overweight or obese in 2011-12 (ABS 2012a). Poor diet is estimated to already cost the nation \$5 billion annually, plus an additional \$11.6 billion annually when the cost of overweight and obesity are considered (AIHW 2012).

Aboriginal and Torres Strait Islander people are nearly twice as likely to be obese as non-Indigenous Australians (DoHA 2012). Nationally, Indigenous children under four suffer from nutritional anaemia and malnutrition at nearly 30 times the rate of non-Indigenous children (PC 2007).

Although inappropriate diet is a major contributor to poor health, it is part of a complex problem that includes genetic, lifestyle and behavioural factors that are not entirely understood. Nevertheless, better nutrition and dietary choice will be part of the solution. This will be an increasing challenge for individuals, health groups, industry and governments to 2025.

To choose foods that reflect their circumstances and values, consumers will keep looking for more information about their food. As well as traditional marketing and labelling, businesses are using new communications technologies to inform consumers about products and to sell directly to them. This can reduce business costs, improve customer relationships and help businesses improve products. New communications technologies will present opportunities for businesses to further meet the needs and preferences of consumers.

3 Growing exports

A leading food exporter supporting the national economy

The Australian food industry makes an important contribution to the national economy. It employed 1.64 million Australians in 2011-12 (around 15 per cent of total national employment) in sectors ranging from farm and fisheries production to food and beverage service (DAFF 2013). Australia is an export-focused food producer—our exports far exceed our food imports. Our exports support businesses and economic prosperity, employment and community wellbeing across Australia.

Australia can't depend on the domestic market alone to support further growth in the food industry. With a population predicted to be around 27 million in 2025 (Commonwealth of Australia 2010), our domestic market is relatively small. To help achieve the necessary economies of scale and scope Australian food businesses must focus on global opportunities.

A growing world population and an increased demand for food will provide unprecedented opportunities for Australia's food sector. Most of this growth will occur in Asia (Chapter 2), creating new and growing export market opportunities.

Population and income growth in the region will increase demand for food products and services of higher quality and with strong product integrity. As a supplier of high-value, sophisticated processed food products, agricultural commodities and services, Australia can help meet this demand. Australia's strengths—geographic location, rich natural resources and the skills and capabilities of our workforce—provide the foundation for us to make the most of these export opportunities.

Though opportunities will differ between market segments and export destinations, Australian businesses will face intense competition from other food exporting countries. These opportunities can't be taken for granted—they must be seized. We are committed to helping our food industry take advantage of these opportunities and grow to be a bigger part of the Australian economy.

Our Goal For 2025

The value of Australia's agriculture and food-related exports will have increased by 45 per cent (in real terms), contributing to an increase in our gross domestic product.

Achieving this growth in exports will take a commitment from Australian governments and industry. Industry must seize these global opportunities and government must make sure the settings are right to support a competitive and productive industry with strong export growth. We need to work to ensure that we have a thriving food industry at home—with access to the latest research, technology and innovation to produce more and higher value foods—that is supported by the right infrastructure to move products efficiently to new markets (Chapter 4).

But simply growing more food won't be enough to capture an increasing share of world markets. Expanding access to export markets is essential for supporting Australian food producers and manufacturers and, in turn, our regional economies. We need to continue to work to break down barriers to trade and improve our access to global markets. We also need to give our food producers a competitive edge, using our clean and green

credentials to our advantage, building on our reputation and increasing recognition of our premium food products internationally through branding.

3.1 Tackling trade barriers

We are committed to expanding export opportunities for the food sector. We want our food businesses to benefit from open access to international markets and increase the value of their exports, particularly to Asia. However, market access can be challenging as global markets for food are often distorted due to protective measures such as tariffs, quotas and subsidies. Technical barriers to trade are also frequently imposed as trading partners seek to address biosecurity and quality concerns or protect their domestic industries. Sometimes these technical barriers are unjustified or are imposed in a way that is onerous and restricts trade.

3.1.1 Liberalising trade and reducing barriers

The Australian Government will continue to use a comprehensive approach to maintaining and expanding market opportunities for Australian food businesses, engaging multilaterally, regionally and bilaterally. We remain committed to advancing global trade reform and liberalisation, particularly through the World Trade Organization, and negotiating and implementing liberalising bilateral and regional trade agreements that support the multilateral system. Through these negotiations we aim to reduce or eliminate tariffs and improve market access for Australian food and agricultural exports.

As well as engaging in multilateral and bilateral trade agreements and international forums, the Australian Government negotiates with trading partners on access for specific commodities to reduce or eliminate tariffs and unjustified non-tariff barriers to trade. Supporting these efforts is Australia's involvement in developing international standards. The Australian Government works with international standard setting bodies to develop international standards that allow countries to implement measures to protect animal, plant and human health without unduly restricting trade. We will continue to actively participate in these bodies.

We will work with our trading partners to improve how measures affecting trade are implemented. For example, we can help our trading partners apply biosecurity measures and food standards that are scientifically justified and risk-based. We will also support market access by continuing to seek recognition of Australia's food safety management system as meeting or exceeding the requirements of our trading partners. Such recognition allows a trading partner to accept Australian food products verified under Australia's food safety system, minimising the need for additional inspection and testing.

3.1.2 Sharing information to improve market access

A wealth of expertise and market-specific knowledge exists across government and industry. While a high degree of cooperation occurs between these sectors, market access opportunities could be enhanced through a greater exchange of information. Improving the coordination of this market intelligence will help the Australian Government address trade barriers, including technical market access issues, better and faster. We will work to improve information-sharing networks with industry and across all levels of government. By sharing lessons learned across markets, we can refine our approach to market access negotiations and ensure industry and government present a consistent message. We will keep consulting with industry to identify priorities for government action to gain the greatest benefit for Australian producers and exporters.

We will collaborate with industry in new and innovative ways to establish clear, evidence-based, market access priorities and employ dedicated market access liaison officers for key food sectors. These liaison officers will provide a focal point for contact and work to improve communication with industry. They will support industry activity in-country, including industry-led delegations to build understanding of markets, and improve contact between our overseas-based agricultural specialists and industry.



Trade and coffee—the perfect blend!



Australia is a great trading nation. We export a range of goods and services, including food. Many countries want to buy what we grow, farm, fish and manufacture. But trade is not just about exports leaving our shores—it flows in both directions. As well as selling goods and services to customers overseas, we also import them.

Lower barriers to trade at home support competition, encouraging Australian businesses to be innovative and efficient. Imports keep prices competitive, including for inputs that

Australian food businesses use in making their products. Additionally, being open to food imports helps Australia push for free trade globally, to benefit Australian food exporters.

Imports also provide us with greater variety, improving the food choices available for Australian consumers. Imports enable Australian consumers to buy products that are out of season, products we do not grow or make, or that we do not produce in sufficient quantity to meet our demand. For example, Australia grows only a very small amount of coffee, so we import nearly all the coffee we drink. Because of imports, many coffee drinkers in Australia don't have to go without their morning coffee. In 2012 Australia's coffee imports were valued at around \$590 million (ABS 2013a).

Many of the world's coffee producers are in developing countries and this crop is very important for their economies, providing employment and foreign exchange earnings from exports.

Australia's demand for coffee, satisfied by imports, has also produced a thriving cafe culture, boosting jobs in our food service industry. So, the next time you're enjoying a coffee, you might want to ponder the benefits of trade.

3.2 Building our food trade ties

3.2.1 Enhancing relationships with trading partners

Building and enhancing relationships will be integral to increasing our food exports. Strong relationships with our trading partners help promote Australian interests and resolve trade issues. The Australian Government supports food businesses through its diplomatic network, negotiating with host governments to open up new markets, improve market access arrangements and deal with threats to existing markets. The diplomatic network also facilitates trade by providing country-specific advice to exporters and by fostering greater cooperation between Australia and our trading partners.

Our Goal For 2025

Australia will have stronger food trade and investment relationships with countries across the region and the capabilities to promote Australian interests.

To strengthen our relationships with trading partners, we will expand resources in our diplomatic network in a targeted way. We will increase the number of agricultural specialists on the ground in priority export markets, including developing a larger footprint across Asia. Australia has recently increased our presence in Indonesia in recognition of our close economic ties and the potential to strengthen agricultural trading relationships. We will deepen our engagement with key and emerging markets and enhance our representation in growing markets, with locations to be selected based on their potential for Australian food exports.

The Australian Government seeks to deepen institutional linkages around food with our trading partners. To this end, we are working with our largest trading partner, China, to jointly strengthen investment and technological cooperation in agriculture to enhance food security. An early outcome of this effort has been the release of a joint Australia-China study, *Feeding the future* (DFAT 2012). The study identified areas for cooperation, including a focus on better provision of information about regulations, efforts to reduce regulatory duplication and opportunities for commercialising agrifood-related research and development (R&D).

3.2.2 Building business-to-business links

Enhancing business-to-business links, both nationally and internationally, will help Australia's food exporters succeed in overseas markets. This is particularly important in Asia where strong relationships and trust are imperative. Australian food businesses can expand not only through exports, but also by integrating with international food businesses through direct investment, joint ventures or licensing arrangements. We will help industry build business relationships in the region through the **Asian Century Business Engagement Plan**. This grants scheme will enhance business organisations' links into Asia by helping Australian companies identify and secure opportunities to sell into Asia's growing middle-class markets and participate in regional value chains.

The locally based but nationally networked **Food Industry Innovation Precinct**, one of the precincts announced as part of the government's **\$1 billion A Plan for Australian Jobs**, will also help foster improved business-to-business links by aligning existing networks and establishing new ones between businesses, advisors, education bodies, research institutions and government. This will help improve access to knowledge and expertise and create the critical mass for future growth. The Food Industry Innovation Precinct will also address some of the capability and leadership development issues that will help Australian businesses confidently export to Asian markets.

We will also appoint an experienced business leader as the **Food and Beverage Supplier Advocate** to encourage business-to-business links between food suppliers and their customers. The advocate will collaborate with industry and government to help build the capability and competitiveness of Australian firms. An area of focus is likely to be the promotion of local firms to new domestic and international business customers, facilitating access to markets they would find difficult to reach without additional support. The Supplier Advocate will link in with the Food Industry Innovation Precinct and also deliver practical activities such as training to help firms better align with market demands and develop their competitiveness, strengthening their ability to win business opportunities.



3.2.3 Understanding our new markets

To seize opportunities Australian food businesses need to be recognised for their ability to innovate and deliver what the customer wants. Research and development can help ensure products are appropriate for the target market and make it easier to meet requirements of export markets. Understanding market trends helps businesses build a case to invest in developing new products or increased production capacity.

The Australian Government wants to help boost public and private investment in R&D to assist businesses to grow exports of their food products and services to Asian markets. As a first step to achieve this, we will establish **a \$28.5 million Asian Food Markets Research Fund**. This fund will support projects that help Australian businesses meet future Asian market needs and preferences, such as commercialising new products, developing processing or packaging technology, or improving biosecurity treatments to support market access.

To grow exports our industry needs an in-depth understanding of consumer preferences in target markets and better information about likely trends. We will work with industry to identify the emerging food needs of Asia and other key and growing markets. **The What Asia wants: better understanding future Asian food demand report series** will provide an assessment of trends in Asian food demand and identify opportunities for Australian producers in expanding Asian markets over the medium to long term (2020 to 2050). The Food Industry Innovation Precinct (Chapter 4) will also focus on developing Asian consumer insights capability. This will help realign some of Australia's significant food and beverage research and development investment across the supply chain. It will also reduce the risks of the innovation process, especially for small to medium enterprises (SMEs), providing them with a sounder basis for exporting to Asian markets.

3.2.4 Facilitating export opportunities

We will continue to help Australian food businesses expand in international markets by providing trade facilitation services, including through our diplomatic network. We will work closely with businesses, particularly SMEs, to build their capacity to access export opportunities. We provide a range of capability development programs, including **Enterprise Connect**, which support eligible Australian SMEs to improve their performance. Our new **Growth Opportunities and Leadership Development (GOLD) initiative** will provide advanced business support to high growth potential SMEs engaged in Industry Innovation Precincts, including the Food Industry Innovation Precinct. The support provided by GOLD will include helping SMEs access new markets.

The Australian Trade Commission's (Austrade) international network helps Australian exporters make sound and coordinated business decisions and build sustainable exports by providing targeted advice, information and market intelligence. The Australian Government provides support to exporters through the **Export Market Development Grants scheme**, which offers financial assistance to SMEs that are aspiring and current exporters. We will also maintain an extensive network of business and government contacts globally and will work with exporters to identify and take advantage of commercial opportunities.

To find out whether you're ready to take advantage of export opportunities visit austrade.gov.au/Getting-ready-for-export.

Australian almonds go nuts!



A regional agribusiness in Renmark in South Australia's Riverland is showcasing Australian almonds to the world and helping expand valuable export markets.

Almondco Australia Limited, which began as a growers' cooperative in the 1940s, is now an award-winning agribusiness with an annual turnover of around \$80 million.

The company has a well-earned reputation for consistently producing high-quality products. Their high-tech, supply chain-focused business exports natural and value-added almond products to more than 40 countries including India, New Zealand and those in Europe and the Middle East. Almondco produces more than 100 almond products, including blanched, oven roasted and flavoured almonds.

In 1996 Almondco first used the international expertise and support of Austrade to build its export development program. From humble beginnings Almondco is now achieving exports of more than \$30 million annually. In 2013 the company expects to increase export shipments by over 75 per cent to a variety of destinations. Further growth is expected as Australia moves to overtake Spain as the second largest almond exporter in the world, behind the United States which produces over 80 per cent of the world's almonds.

India will continue to be an important market as its rapid growth provides opportunities for Australian exporters—but India has a high tariff on imported nuts. The Australian Government is negotiating a Comprehensive Economic Cooperation Agreement with India that aims to reduce tariff barriers and improve market access. Australia is negotiating other free trade agreements that aim to deliver improved access for Australian nut exports, including with Japan, the Republic of Korea and China.

3.3 Building on Australia's reputation

Australia is known for the quality and safety of our food products and our reliability as a trading partner. Australia's freedom from many pests and diseases, the environmental stewardship of our farmers and land managers, and our world-class food safety management system all contribute to our global reputation.

Our strong credentials in these areas gives us a competitive advantage to target existing, growing and emerging premium markets. This provides opportunities for Australian food producers and businesses to achieve higher returns on their products.

Increased global food demand provides an opportunity for all food exporting nations so Australian businesses will face fierce competition. We need to successfully take advantage of these opportunities and position ourselves favourably against key competitors. We need to find new and innovative ways to build on our reputation and leverage our strong credentials to keep our competitive edge.

Emphasising the quality of Australian food and finding ways to more clearly identify our clean, green and environmentally friendly credentials will allow exporters to benefit from our valuable national brand.

Our Goal For 2025

Australia will have a globally recognised food brand that is synonymous with high-quality, innovative, safe and sustainable food, services and technology.

We will work with industry to deliver a **Brand Australia Global Food Strategy** that will build Australia's reputation as a leader in the production of premium food and increase export opportunities. The strategy will promote Australian food and raise the profile of our nation's credentials as a sustainable food producer.

The strategy will include a brand identity for Australian food and related technology, building on our **Australia unlimited campaign** to promote our strengths and emphasise the quality of Australian food to overseas markets. This approach will help our SMEs, which make up 99 per cent of Australia's food manufacturing businesses (DIISRTE 2012), to leverage Australia's strong global reputation

Australians all play a part in preserving our country's favourable animal and plant health status and in protecting our community, farms and environment from pest and disease. To support our valuable national brand, governments and industry can also play an important role by promoting our world-class biosecurity system. We will continue reforms to deliver a more efficient and effective, modern, science and risk-based biosecurity system that is responsive and targeted in a changing global trading environment (Chapter 4).

We will also continue to work with industry and consumers to maintain the safety of our food supply (Chapter 5). We will increase promotion of Australia's food safety management system—regarded as one of the best in the world—and demonstrate the system's high performance to our trading partners. This will reassure customers, enhance Australia's competitive edge and help secure market access.

Protect Australia's home advantage by keeping pests and diseases out—be careful and declare what you bring in from overseas.

4 Thriving industry

A competitive and productive food industry

Australia's food industry must be competitive and productive to succeed in the Asian century. It must build on its competitive strengths and keep productivity growing, while also dealing with changing environmental and economic circumstances. To foster a thriving industry, Australia needs to continue to make strategic investments in research capacity, infrastructure, biosecurity system and workforce. Our food businesses also need access to capital and other inputs.

The Australian Government helps the food industry thrive by supporting a stable economy and business environment in which businesses can invest with confidence. This includes ensuring that markets are competitive and that regulations benefit Australians without unnecessarily holding businesses back. A competitive and productive food industry generates employment and wealth for our food-producing regions, building on their competitive advantages to make the most of Asian century opportunities.



4.1 An innovative and adaptive industry

Australia's food industry, from production to retail, is a complex web of people, businesses and materials stretching across Australia and the world. It includes not only raw and processed food, but the equipment, transport and marketing needed to get food onto your plate. These food industry logistics have become more technical—for example, remote-controlled irrigation systems, cows milked by robots, food packaging technologies and self-serve checkouts. Such innovation helps food businesses increase productivity and drive efficiency, leading to profitability. It's also how businesses create food products and services that people value in their daily lives, such as foods that are fresher, more nutritious or more convenient.

Innovation is a fundamental driver of food business success. It gives businesses an edge in creating new products and services that consumers want or in adapting to environmental changes such as climate change. Food businesses must continue to innovate to meet the growing need for food in the Asian century.

The Australian Government supports innovation across our economy and society through our industry and innovation statement, **A Plan for Australian Jobs**. The plan sets out how **we will invest over \$1 billion** to boost Australian innovation and generate business opportunities, economic growth and high skilled, high wage jobs for the future. Combined with investment by business, our investment helps create the knowledge and technology needed for a vibrant food industry.

4.1.1 Boosting agricultural productivity growth

Productivity growth is a major way that Australia and other countries have substantially increased food production over the second half of the 20th century, using science, research and innovation to grow more with less. In Australia this increase has contributed to the growth in food exports and the success of our globally competitive food producers. In past decades Australia has seen strong growth in agricultural productivity relative to other sectors of the economy, averaging about 2 per cent between the late 1970s and the mid-1990s. However, since then agricultural productivity in Australia appears to have grown little, in part because of drought (Gray et al. 2012).

We want to boost agricultural productivity growth, increasing productivity by 30 per cent by 2025. Continued agricultural productivity growth is a key way to increase exports because it helps Australia maintain or increase the amount of food produced from the same or fewer inputs. Boosting productivity growth could be a key way to use natural resources more efficiently.

Our Goal For 2025

Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs.

This is a shared challenge and the Australian Government will work with businesses, other governments and the community to meet it. The decisions that businesses make—such as what they plant and when, the number of staff they employ and whether they use new technology or machinery—are among the most important things affecting productivity growth.

A critical way that the Australian Government can help increase agricultural productivity is by investing in rural research, development and extension (RD&E) and encouraging others to do the same. We will continue looking for ways to increase the overall investment in rural RD&E, including from the private sector.

We support rural RD&E through investments worth about \$700 million annually (PC 2011), including the Rural Research and Development Corporations (RDCs) and programs run by the CSIRO, universities, Cooperative Research Centres and other Australian Government agencies. We have also decided **to invest \$28.5 million in a new Asian Market Strategic Research Fund** (Chapter 3). This fund will boost public and private R&D investment in ways that will help businesses export more of their products and services.

Our broader policies also help increase productivity, like those that encourage competition across the economy. The R&D tax incentive and Australia's strong intellectual property laws encourage private investment in innovation. This gives businesses an incentive to keep creating new ideas that benefit our economy and their bottom lines.

Australia's RDC model is unique and held in high regard overseas. As our primary vehicle for funding rural innovation, RDCs are a partnership between the Australian Government and industry created to share funding and direction setting for primary industry R&D and the adoption of R&D findings. RDCs commission and manage targeted investment in research, innovation, knowledge creation and transfer. In 2011-12 total expenditure by RDCs on R&D was about \$459 million.

Recent reviews have found that on the whole the RDC model and the wider rural RD&E system are working well. Our **Rural Research and Development Policy Statement**, released in 2012, reiterates the commitment we have made to maintaining this world-leading system for investment in rural research. It also outlines our plans to ensure we are getting the best return for our shared investment with industry. Among other things, we want to improve priority setting and coordination across the whole rural R&D system and keep increasing cross-sectoral research to meet broad challenges such as improving soils. The development of whole of government strategic research priorities, as part of the implementation of the **National Research Investment Plan**, will also be an important mechanism to coordinate investment in rural R&D as part of the broader research system.

One way we are pursuing our priorities is to provide stronger direction on rural R&D priorities, which will help focus investments on important medium to long-term needs. This may include advice to RDCs on specific issues through their planning process, and publishing broad guidance on the government's research priorities. Current priorities are outlined in the national *Rural Research and Development Priorities*.

The Australian Government invests in rural RD&E alongside state and territory governments, businesses and research institutions. As a nation, we must make the most of these substantial investments to increase agricultural productivity by sharing information and reducing duplication and overlaps. The National Primary Industries RD&E Framework helps co-ordinate efforts to increase cross-sectoral research and national collaboration by bringing together governments, the CSIRO, universities and the RDCs to work on rural RD&E priorities.

Australia is sharing information and collaborating internationally by working with the Organisation for Economic Cooperation and Development (OECD). The OECD has recently developed a draft framework to help governments inform each other about their efforts to improve agricultural productivity. Australia is participating in the early tests of the framework, alongside Brazil and Canada. Ultimately this work aims to help the developing world increase its agricultural productivity, while Australia will benefit by knowing more about the experiences of other nations.

Innovation only occurs when the results of R&D are put into practice. In agriculture, rural extension services have traditionally involved governments, but the private sector has increased its involvement in recent decades. Making sure people can use new knowledge will be a key way to increase agricultural productivity.

To gain more benefits from our R&D investment, we asked RDCs to formally plan for extension and adoption. We will focus on ensuring that new technologies and methods are communicated well to our food industry to increase the levels of adoption. The private sector will keep providing extension services where commercial opportunities exist. The government will focus its extension investment where significant public benefits exist, such as improved natural resource management.

4.1.2 Innovating across the supply chain

Innovation in food manufacturing is a major way businesses create the variety, quality and price of food that Australians enjoy, creating a profitable future as they do. Innovation is also critical if we are to meet our goal of increasing the value of exports by 45 per cent, because it helps businesses improve efficiency and create higher value products.

The Australian Government encourages increased innovation in the food manufacturing industry in part through our broader innovation investments across the economy. We also support increased innovation through targeted initiatives, such as research programs and funding for cooperative research centres (CRCs) and other collaborations. Since 1991, 46 CRCs undertaking food industry relevant research have been awarded over \$900 million in funding.

We recently invested to increase innovation in food manufacturing. **The first and second phases of the Australian Research Council's \$236 million Industrial Transformation Research Program** focus on food-related research, including future food storage, food processing, manufacturing capabilities and product opportunities. It will fund universities to partner with industry and form R&D hubs and training centres to help the industry innovate and seize emerging opportunities. The first round provided \$23 million for food industry research.

More can be done to increase innovation that grows the food manufacturing sector. To expand commerce with the Asian region, businesses must keep improving their understanding of consumer preferences and continue to create new food products and services. The strong commercial incentives for doing this will mean businesses will continue investing. However, sometimes businesses cannot pool their efforts in ways that benefit the whole industry. More forward-looking collaborations between the food industry and public research institutions, universities and government would foster further innovation. A challenge to achieve this is the dominance of SMEs in the food manufacturing industry, many of which lack the scale, experience and skills to invest in long-term innovation.

Our Goal For 2025

Innovation in Australia's food manufacturing industry will have increased, building scale and capability through collaborations to make the most of emerging opportunities in the Asian region.

To address this need, we recently announced the establishment of the **Food Industry Innovation Precinct** as part of our **A Plan for Australian Jobs**. The precinct will help Australia's largest manufacturing sector become more strategic, commercially targeted and coordinated in a sustainable way. It will help develop consumer insights to inform a long-term innovation agenda aimed at realising opportunities in the Asian century. The precinct will focus on accelerating and enhancing the development capability of many food businesses through training, improved networking and collaboration. For example, through the linking and mentoring of SMEs by multinational enterprises and the **government's new GOLD initiative**.

GOLD will provide advanced business support to high potential SMEs participating in the Food Industry Innovation Precinct, including coordination of services for management development and business design solutions, and enhanced marketing services. Enterprise

Connect, AusIndustry, Austrade and the Export Finance and Insurance Corporation will participate in the delivery of GOLD services.

The Food Industry Innovation Precinct will be supported by an **Industry Innovation Network**. The Industry Innovation Network will be an internet accessible resource that facilitates open access to data and information sharing, linking businesses to potential suppliers, partners and customers. It will connect geographically dispersed users, provide a medium for sharing knowledge, offer a point of contact for international organisations, and raise awareness of, build capability and grow the culture for Australian innovation. The Industry Innovation Network will facilitate benefits of the Food Industry Innovation Precinct flowing to regional Australia where more than half of all food manufacturing jobs are located.

Enterprise Connect and its Food Processing Industry Support Network

Success in business has a lot to do with making connections and getting the right advice.

Birch & Waite has grown rapidly from a small pate manufacturer in the 1980s to an employer of over 100 people who produce dressings, sauces, mayonnaise and desserts for Australian and overseas markets.

For small and medium Australian food businesses like Birch & Waite, the support of the Australian Government's Enterprise Connect program has been critical in helping them reach their full potential.

Birch & Waite worked with Enterprise Connect on a business review and sought their advice on how to expand production. This free service assessed key areas of the business, including operational efficiency, product development, strategic planning and marketing.

Birch & Waite acted on the recommendations of the review, including engaging and empowering their workforce— all staff are receiving training in a Certificate III in Competitive Manufacturing. They also reviewed and improved their process for developing new products, looking to reduce time and resources.

Following the recommendations of their Enterprise Connect business review, Birch & Waite have increased performance and success. Productivity is up 27 per cent and the new range of products has been well received— the garlic aioli won a prize as the year's best new retail product.

Birch & Waite are working on new food products and will continue to engage with Enterprise Connect as they expand their business.

Genetically modified foods

People have been manipulating the genetic make-up of plants and animals for thousands of years using traditional cross breeding methods, selecting plants and animals with the most desirable characteristics to breed the next generation.

These desirable characteristics came from naturally occurring differences in the genetic composition of individual plants or animals. Modern techniques of genetic modification speed up this process of selective breeding, providing new ways of identifying particular characteristics and transferring them between living organisms. Some examples of

genetically modified (GM) foods are corn plants with a gene that makes them resistant to insect attack and soybeans with a modified fatty acid content that makes the oil better suited for frying.

In Australia, the Office of the Gene Technology Regulator oversees the development and environmental release of GM organisms while Food Standards Australia New Zealand undertakes comprehensive safety assessments on all GM food. The safety assessment is one of the most rigorous in the world. This ensures that approved GM foods have no greater risks than comparable conventional foods and that they offer the same or greater benefits. With this safety net in place, we support the use of GM foods.

Despite Australia's safety net, some people prefer not to eat GM foods. To give consumers a choice, under Australian law GM foods and ingredients must be identified on food labels. Some foods containing very low levels of GM ingredients are exempt. For more information visit foodstandards.gov.au.

In the end it is all about choice. We will not tell farmers what to grow— they have the right to choose to grow crops that are traditional or modern, that are conventionally bred or have approved GM traits. We will not tell consumers what to eat—they have the right to choose whether or not they eat GM food.

4.1.3 Welcoming biotechnology

New technology will continue to be created and used in the food sector, as in other industry sectors, such as construction and retail. Applying new technology is a critical way that businesses innovate, become more efficient and meet new consumer needs, including convenience and nutritional qualities.

The world faces the challenge of feeding a growing population sustainably with less land, water, fertiliser and oil than before. Already about 870 million people are chronically undernourished. Adding to the challenge is a growing middle class in developing countries that wants higher protein and higher quality foods that use more resources to produce. The world must significantly increase the quantity of food and improve the way we produce it to meet this challenge.

Biotechnology, including genetically modified (GM) food products, will be essential to meeting future food needs in Australia and around the world. Although biotechnology alone is unlikely to meet world food demand, we need to use all available technologies to confront the challenges of increased world food needs.

We will keep encouraging the development and adoption of new technologies, including biotechnology and nanotechnology. New technology must be safe for people and the environment, and consumers must be able to get information about their food to make an informed choice. While new technology can be controversial, Australia has a strong regulatory regime. For example, under Australia's gene technology regulatory system all GM crops and food must be assessed as safe and GM ingredients must be listed on food labels.

To encourage continued use of new technology we will keep improving regulation in ways that drive innovation while maintaining consumer choice. One immediate step will be working with industry and state and territory governments to develop a **national strategy for biotechnology in agriculture**. We will hold targeted consultations during 2013-14 to identify the constraints farmers face in adopting new technologies. The resulting strategy will explore the benefits of biotechnology, within appropriate regulatory

frameworks, and how to encourage the use of these technologies and address consumer and community perceptions. The aim of this strategy is to move towards national consistency on biotechnology.

4.1.4 Adapting to climate change and drought

To increase agricultural productivity and food exports, the food industry must adapt to climate change and future droughts. This will have to be achieved using the same level of, or fewer, natural resources.

Over the coming decades some change to our climate is inevitable (Meehl et al. 2007). Experts predict an increase in the frequency and intensity of extreme events, such as droughts, heatwaves, fires, floods and pest and disease outbreaks (Hennessy et al. 2007). These changes and expected increases in temperature will increase the risks to food production in Australia and could hold back growth and profitability if producers fail to adapt. However, climate change may also provide opportunities for some food production to expand geographically, extend growing seasons and diversify.

We are addressing the causes of climate change (mitigation) and its consequences (adaptation). The introduction of a carbon price is helping reduce Australia's greenhouse gas emissions, drive investment in energy efficiency and promote innovation.

Agriculture is excluded from the carbon price. Instead we are encouraging mitigation and adaptation in agriculture through the more than **\$1 billion Land Sector Package as part of the Clean Energy Future Plan**. The package includes the **Carbon Farming Futures Program**, which is helping identify opportunities to reduce greenhouse gas emissions, store carbon in our vegetation and soils, and enhance sustainable agricultural practices. This package complements the **Carbon Farming Initiative**, a voluntary scheme that creates opportunities for farmers and land managers to earn income from carbon credits.

For food manufacturers, some input costs may increase under a carbon price, creating an incentive to become more efficient and reduce emissions. We are helping processors adjust by providing funding to implement emissions reduction technologies through the **Clean Technology Food and Foundries Investment program**.

Australia's farmers are leaders in producing food in a harsh and variable climate. Climate change may alter where foods can be grown and change the growing seasons. Farm businesses need to adapt by managing risks and uncertainty and by responding to local conditions. We will support this adaptation by continuing investment in research and information that helps farmers and fishers make business decisions in response to changes. Our work on national water reforms (Chapter 7) will also support long-term adaptation by producers.

The frequency and severity of drought is likely to increase with climate change. The Australian, state and territory governments are working with farm businesses to help them build resilience and prepare for this challenge. This includes programs and reforms that support farm families in tough conditions and help them move away from government-funded crisis assistance to risk management and preparedness. In part this means ensuring that government interventions do not discourage people and farm businesses from adapting.

Harvesting opportunities in a changing climate

Climate change poses challenges for all sectors of the Australian economy, but particularly for our agricultural and food producing industries. Many opportunities exist for these industries to become more efficient, productive and sustainable by reducing greenhouse gas emissions, storing carbon in the landscape, improving environmental health and promoting biodiversity.

The key to achieving this is to build resilience, adapt practices to changing climatic conditions, and create a revenue stream from carbon markets.

Mitigation is win-win for farmers

Through our Clean Energy Future Plan, we are supporting Australian businesses and households to reduce their emissions. Central to this is a carbon pricing mechanism, which is cutting greenhouse gas emissions in the cheapest and most effective way. These actions will drive investment in new clean energy sources and create jobs.

Farmers and food producers can make a significant contribution to reducing Australia's greenhouse gas emissions. Under the Carbon Farming Initiative, landholders can generate carbon credits from activities that reduce emissions of greenhouse gases or store carbon in soil or trees. These credits can be sold to businesses that are liable under the carbon price or to people who want to offset their emissions.

A farm in Young, New South Wales is already seeing the benefits of participating in the Carbon Farming Initiative. By capturing gas from the manure of their 22 000 pigs and installing a biogas fuelled generator they are able to earn carbon credits and have reduced their electricity bill to zero.

For more information visit daff.gov.au/climatechange/cfi.

Adapting for the future

Some change to Australia's climate is inevitable. We fund research that is unlocking new farming practices and technologies that enable farmers and food producers to adapt to climate variability and enhance productivity.

In Victoria, researchers have found that adding grape marc—a by-product of the winemaking process—to dairy cow feed can reduce methane emissions by 15 to 20 per cent and improve the quality of the animal's diet. This means faster growth rates can be achieved with lower total food intake, increasing resilience and adaptive capacity.

Building resilience

Farmers and their families need support in building their capacity to prepare for and manage the effects of climate change and other challenges, such as drought and flood.

In October 2012 the Australian, state and territory government primary industries ministers agreed to the framework for a new national package of drought-related programs. Rather than waiting until farmers are in crisis, the package will focus on helping farmers prepare for and manage the effects of climate-related challenges.

On 14 May 2013, as part of the 2013-14 Budget, the Australian Government announced its main contribution to reform, the new **Farm Household Allowance**. This allowance

will provide eligible farmers and their partners up to three years of household income support, paid fortnightly. Recipients will be supported by dedicated case managers as they assess their situation and prepare for the future. From 1 July 2014 the new allowance will replace the Exceptional Circumstances Relief Payment and the Transitional Farm Family Payment.

4.2 Building a skilled workforce

The food industry employs about one-sixth of Australia's workforce and is a major source of regional employment. The skills of our food workforce are the key enabler of industry growth. Businesses need the right people to create new products, services and business models that will increase exports and productivity. Securing enough people with the right skills will be a growing challenge to 2025. The industry needs to expand the size and skills base of its workforce or, if this is not possible, adapt to a smaller labour pool.

The skills needed in the food industry will change as production, processing and logistics become more complex and technological. This will help businesses increase productivity and create better quality foods. Workers will be using tools like remote-controlled harvesting, food and nutrition sciences, laboratory sciences, engineering, information technology and advanced soil mapping.

This trend will require workers to have higher skill levels. The primary industries workforce currently has a relatively high proportion of workers without post-school qualifications, at 54 per cent compared to 35 per cent for all industries (ABS 2012b).

Increasing Australian exports in the Asian century will require some skills more than others. Developing these Asia-relevant capabilities, such as knowledge of Asia or particular technical skills, will be an ongoing priority to help businesses take up growth opportunities.

Our Goal For 2025

Australia's agriculture and fisheries workforce will have built its skills base, increasing the proportion with post-school qualifications.

People who wish to work in the food industry will be able to build their skills using our education and training systems. We want all Australians to have the opportunity to acquire the skills and education they need to participate fully in a strong economy and a fairer society. To this end we are investing **\$9 billion over five years from 2012-13 through the states and territories for the National Vocational Education and Training System**. This system helps working-age Australians, including those in the food industry, better access the skills and qualifications they need.

The Australian Government supports a number of initiatives that assist the food industry to meet their workforce and skills needs. For example, **Agrifood Skills Australia** and **Manufacturing Skills Australia** are funded by the Australian Government to ensure that nationally recognised skills standards and qualifications support skills requirements of the food industry.

We also want to work with employers in the industry, particularly in farming, to help them build their workforce. To initiate this process, we recently commissioned the National Rural Advisory Council's assessment of agricultural employers' workforce planning capabilities. This will help the industry, governments and training providers create better training programs for business owners and employees, and help them build

a more skilled team. We have also asked the Australian Workforce and Productivity Agency to identify how industry and the tertiary education sector should address workforce development priorities and the skill needs across the food supply chain.

Invest in staff development and retention. Think about training and practical experiences to help your staff and business thrive. See what's available by visiting skillsconnect.gov.au.



Image courtesy of Australian Food and Grocery Council

Australia's ageing workforce and the relatively low level of interest in agrifood careers could constrain industry growth if the industry does not keep building its skills. The ageing of the workforce has been particularly marked in agriculture, which has the oldest age profile of any industry and a widely used family business model. This means that succession planning will be an ongoing challenge over the coming decades and that the agriculture industry may be different as a result. It also means people will be leaving agriculture at a time when it is harder to attract people to the industry. This presents an opportunity to improve the image of the industry and attract more people into it, already a key priority for bodies like the National Agribusiness Education, Skills and Labour Taskforce and Agrifood Skills Australia.

While improving the image of the food industry is largely a role for industry, the Australian Government looks for ways to support industry-led responses. One example is the CareerHarvest website (careerharvest.com.au) which promotes the industry's diverse careers options to the community. We also support groups that promote agricultural careers in schools, such as the Primary Industry Centre for Science Education and the Primary Industries Education Foundation. Projecting a positive image of farming and food manufacturing in schools is an obvious place to begin to inspire young Australians to work in these sectors.

The agriculture and food industry workforce will continue to consist of both high and low skilled jobs in the future. Graduates of school and tertiary institutions provide one source of workers for the industry. Other groups could also help the industry workforce grow, including Indigenous Australians, tourists, people wanting a career change and the semiretired. We aim to ensure that anyone who wants to join the food industry can do so. We will continue working with industry and the community to find new ways to help people work in the food industry.

We are committed to reducing barriers to Indigenous people participating in the food industry, to help address current and future skill shortages. The food industry could provide significant employment and economic development opportunities for Aboriginal and Torres Strait Islander people in the areas where they live. Such initiatives would also contribute to our **Closing the Gap** target to halve the gap in employment outcomes between Indigenous and non-Indigenous Australians by 2018.

Overseas workers are another possible source of people to work in the food industry, which may help the food industry address unmet labour demands in some circumstances. The **Seasonal Worker Program** and the **Working Holiday Maker Program** are ways that we help some businesses employ people from overseas during peak harvest periods.

4.3 Accessing capital and inputs

Food businesses need access to capital and other inputs to grow and take advantage of export opportunities.

4.3.1 Encouraging investment

For the food industry to succeed, businesses need to be able to invest with confidence, creating jobs, and driving innovation. Businesses need access to domestic and foreign capital to invest in future growth opportunities and build trade ties with Asia.

The Australian Government encourages investment in Australia, including the food industry, primarily by supporting a stable economy and a safe and secure financial system. We play a role through various agencies and initiatives that help connect potential investors to businesses wishing to expand. However, decisions about lending criteria are commercial decisions for individual financial institutions and are influenced by expected returns on investments.

Between now and 2050, Australia's food industry will need up to \$1 trillion in additional capital to increase its size, productivity and competitiveness in the global market (Port Jackson Partners 2012). Domestic capital will not be enough, so foreign investment will be needed to help the industry increase its size, productivity and competitiveness.

Australia welcomes foreign investment. Foreign capital has always supplemented domestic savings to drive employment and prosperity, including in agriculture. It can help farmers, agricultural enterprises and food processors and manufacturers diversify, become more competitive and boost incomes. It helps sustain Australia's agricultural productivity and economic prosperity more broadly.

We recognise the benefits that foreign investment in the agricultural sector can bring, however, like many other countries, Australia reviews foreign investment proposals on a case-by-case basis to ensure they are not contrary to the national interest. All direct investments by foreign government investors require approval regardless of the value of the investment, as do proposals by such investors to establish new businesses or acquire

land in Australia. Proposed investments by private investors in agribusinesses are subject to the same thresholds that apply to investment in other Australian company or business assets.

Our **Policy Statement on Foreign Investment in Agriculture**, released in January 2012, provides guidance on factors that we typically consider when assessing proposed investments in agriculture. Examples include land access and use, biodiversity and the prosperity in Australia's local and regional communities.

Parts of the Australian community have concerns about the sale of rural land and agricultural businesses to foreign investors. Consequently, we have taken steps aimed at ensuring our policy is well understood and at strengthening the transparency of foreign ownership of rural land and agricultural food production. These steps include funding the Australian Bureau of Statistics Agricultural Land and Water Ownership Survey and establishing **a register for foreign-owned agricultural land**. Transparency in foreign investment in the agriculture sector is important in providing reassurance to Australians and foreign investors alike.

Farm Finance

The high dollar and depreciation of land values are putting significant pressure on many farmers, leaving otherwise viable farms facing serious difficulty to stay operational. Debt pressure can restrict growth and hinder farmers from improving their business practices. We will build the ongoing financial resilience of farmers who are currently struggling with high levels of debt through Farm Finance.

Farm Finance has four measures:

- **Concessional loans** give farmers the breathing space to focus on growing and improving their farm business, including risk management practices and preparedness measures, as well as looking at opportunities to improve their business structures.
- Funding for **more rural financial counsellors** to provide free, impartial and confidential advice to help farmers, fishers and agriculture-dependent small businesses in decision-making.
- **Enhancing the Farm Management Deposits Scheme** to allow more primary producers to access the scheme to prepare for and manage future risk.
- Progressing a nationally consistent approach to **farm debt mediation** to help farmers and their bankers access a simpler, more consistent system that delivers better results for all involved.

For more information on Farm Finance, visit daff.gov.au/farmfinance.

4.3.2 Securing business inputs

In addition to capital, to grow and prosper food businesses need access to many other inputs at competitive prices. Critical inputs across the food supply chain include labour, infrastructure, transport, machinery, land, water, energy, fertilisers, packaging materials, agricultural chemicals, veterinary medicines and genetic resources.

Many food businesses face input costs that rise faster than the price of what they sell. Improving productivity is the main way for businesses to address this challenge over the long term.

The Australian Government's economy-wide policies—including competition, regulation and free trade policies—encourage well-functioning markets for the inputs businesses need. Together these policies help put downward pressure on input prices, promote greater variety and quality, and provide a framework for addressing any market failure.

We will continue to push for well-regulated and competitive markets to deliver the inputs needed by businesses at competitive prices. Specific policies on infrastructure (Section 4.4), labour (Section 4.2) and land and water (Chapter 7) are discussed separately.

Energy is a critical input for food businesses, as it is a significant business cost and a major influence on global food prices. Through our *Energy white paper 2012*, we have a comprehensive policy to guide the development of Australia's energy sector. We aim to have an energy system that provides accessible, reliable and competitively priced energy for all Australians, which enhances Australia's domestic and export growth potential and delivers clean and sustainable energy.

Agricultural chemicals and veterinary medicines are essential to modern agriculture and, together with fertilisers, have enabled global agriculture to feed the world's population. We are working with state and territory governments to improve the regulation of these inputs and ultimately help reduce their costs.

Genetic resources are the basis for improving the plant and animal varieties used for our food supply. They are used and conserved in the wild, on farms and in facilities for research, development and genetic resources. We need to conserve and use genetic resources to improve agricultural productivity and create new food products. This will help industry remain viable, support ongoing food security and help producers adapt to climate change. We will continue our work with industry and other governments to conserve and manage national genetic resources. Governments and industry are working to establish a national genetic resources centre, beginning with the establishment of the Australian Grains Genebank in Horsham, Victoria and a pasture genebank later this year.

4.4 Investing in infrastructure and biosecurity systems

Our Goal For 2025

Australia's infrastructure and biosecurity systems will support a growing food industry, moving food cost-effectively and efficiently to markets and supporting new export opportunities.

4.4.1 Investing in infrastructure

Australia needs the right infrastructure to create efficient food supply chains, increase productivity and meet rapidly growing trade. This infrastructure includes roads, rail, port facilities, telecommunications, water supply and energy networks. As a vast nation with a small population, building and maintaining Australia's infrastructure will remain challenging.

We aim to implement a national infrastructure framework to help governments and businesses plan and prioritise infrastructure needs at least 20 years ahead. Our investments look at the needs of the whole economy and work to encourage private

investment. A range of long-term strategies, including those on land freight, ports, regional development and urban Australia, are being put in place to guide some of these investments. Overall this approach aims to ensure that Australia's infrastructure is efficient and is put where it is most needed.

We are investing record amounts in infrastructure, including transport infrastructure, water infrastructure (Chapter 7) and the **National Broadband Network** (Section 4.4.3). Since 2008, **\$60 billion has been allocated towards transport infrastructure through the Nation Building Program** to raise productivity and improve supply chains. Much of this investment occurs in regional Australia and the food industry will benefit from resulting infrastructure improvements.

We also **established Infrastructure Australia** to advise on national infrastructure network priorities, investment mechanisms and impediments. Another recent infrastructure reform is the National Heavy Vehicle Regulator, a single national regulator that will reduce red tape and encourage innovation and productivity in the heavy vehicle industry. These and other reforms will help improve the efficiency of Australia's freight transport and reduce transport costs for the food industry and others.

We will consider the food industry's needs in the future prioritising, planning, investment and regulation of national infrastructure. A key challenge for our food logistics chains to 2025 will be responding to potential changes in food demand across Asia. The industry will also need to adapt where climate change affects where food can be grown. Australian businesses and governments need to plan for these changes to make the right investment and regulatory improvements to help the industry grow.

An early priority will be to better understand food supply chains, including sector-specific freight movements and logistics, to help business and governments plan infrastructure. To achieve this we are commissioning an analysis of the food industry's future infrastructure needs to 2025.

4.4.2 Maintaining a robust and effective biosecurity system

More and more people and goods are moving in and out of Australia. A strong biosecurity system is vital to protect our agriculture and environment from pests and diseases and retain Australia's reputation as a clean and green supplier of food.

We are committed to a viable, cost-effective and sustainable biosecurity system to protect the economy, the environment and people's health. In line with international agreements, we take a risk-based approach to biosecurity that stretches from production overseas to Australia's border and territory. We manage the potential risk of entry of an exotic species to a very low level and target our investment and resources toward the highest risks. Building on earlier achievements we are establishing a centre of excellence for biosecurity risk analysis to ensure that we focus resources and investment on areas of high risk and take actions that are effective.

Our first priority is preventing the entry of new pests and diseases, but we also have robust response arrangements in place to eradicate pest or disease outbreaks that may occur in Australia. Through the **Caring for our Country initiative**, we provide support for national eradication strategies for new pest and disease incursions that threaten production and the environment. This support is provided on the feasibility of eradication and the cost benefit of mounting a response. Caring for our Country support must also be appropriate to the aims of the initiative, as well as being effective and efficient in delivering outcomes.

Biosecurity is everyone's responsibility. An effective system depends on cooperation between governments, suppliers, importers, exporters, industry groups and the wider community. We have agreements with stakeholders outlining responsibilities for prevention and actions to take for eradication and ongoing management. To assist the community, we will continue to educate people about biosecurity requirements and facilitate reporting of suspected exotic species.

4.4.3 Realising the benefits of the National Broadband Network

The **National Broadband Network** (NBN) will help the food industry unlock future opportunities hard to imagine today. It will help reduce costs, increase efficiency and find new markets. The NBN will give food businesses better access to commercial information, training (especially in regional Australia) and opportunities to collaborate. This will include the **Industry Innovation Network**, which will assist the **Food Industry Innovation Precinct** to connect businesses and researchers across Australia (Section 4.1.2). Increased participation in the digital economy will allow food businesses and consumers to take advantage of new technologies and direct retail opportunities.

Our Goal For 2025

Participation by Australian food businesses in the digital economy will have increased, driving productivity gains and innovation and creating connections with global markets.

The internet is bringing the world closer together, providing opportunities for Australia's food businesses to connect directly with local and international customers, and giving Australian consumers new ways of purchasing food. In the years ahead the NBN will help food businesses in rural and regional Australia participate in the digital economy and promote their business. For example, Regional Development Australia Northern Rivers has developed a MyFood Northern Rivers iPhone and iPad app which provides information about local producers, restaurants, farmers' markets and events. As the NBN is rolled out, food businesses can build on these digital innovations to promote their regional brands and products to wider audiences, including overseas markets (Section 4.6).

Access to fast broadband connectivity through the NBN could improve the productivity and competitiveness of farming in the near future. Examples of advances in technology include low-cost soil moisture probes scattered throughout paddocks, advanced 3D imagery to measure crops, and livestock tracking with position tags. Such technologies can improve productivity and help farmers manage the environment sustainably, improve safety and stay in touch with colleagues across Australia and the world.

SMART farms of the future



Australian farmers and researchers are transforming a typical grazing property, Kirby Farm in Armidale in northern New South Wales, into Australia's first broadband-enabled SMART farm. Scientists at CSIRO and the University of New England, supported by the Australian Centre for Broadband Innovation, are deploying a range of technologies to demonstrate their benefits for farming.

Living soil moisture map

On Kirby Farm, a network of 100 wireless sensors monitor soil moisture, soil temperature, soil electrical conductivity and air temperature every five minutes to create a living and breathing soil moisture map. The soil moisture map provides vital information on when to sow, when to fertilise and where and when to move livestock or plant crops.

Some cotton growers using these soil sensors are almost doubling their yields per megalitre of water used. This is because they can vary irrigation rates according to the localised needs of soil and plants, rather than taking the one-size-fits-all approach for a whole paddock.

Keeping an eye on cattle

Wireless ear tags send data on the location of individual cattle on Kirby Farm to the SMART Farm Control Portal. The farmer can see updated location information for each beast on a map and receive SMS alerts if any stray too far. Several 360-degree cameras will be set up around Kirby Farm to observe cattle at locations where they congregate, such as around the water trough.

The next step is to use accelerometers built into GPS collars to help the farmer determine cattle behaviour, such as whether they are standing, walking or grazing.

Armchair farming

The SMART Farm Control Portal displays information on an aerial map view of the property so the farmer can see each sensor and instantly access the data it is collecting. The portal can automatically alert a farmer via text message if something is wrong, such as a prolonged calving, or if the conditions are right to start planting crops.

High-definition video conferencing and smart TVs offer pathways for business support, on-the-job training, remote health and education services, entertainment and social networking. Using this technology the farmer could access remote expertise for troubleshooting issues such as the breakdown of an important piece of machinery.

The SMART Farmhouse will also be set up as a connected classroom where the community, as well as students of all ages, can participate in virtual field days by accessing the latest data streaming in from a range of field, animal and machinery sensors.

4.5 A well-regulated industry

Through regulation, the Australian Government only intervenes to address an identified problem and only where we see that regulation is likely to be cost effective. In doing so we aim to create the maximum possible benefit to the community—such as safe working conditions, safe food or reduced pollution.

Cost-effective regulation and vigorous competition help the economy and society function safely, fairly and efficiently, reduce prices and improving quality and choice for consumers. Competition in the economy also strengthens the food industry so that it can take up future growth opportunities.

But poorly designed regulation can act like a tax on business, raising costs and stifling innovation. This, and inadequate competition, can lower living standards over time—for example, by reducing employment or increasing prices. We will continue to work to achieve the right balance between what the community wants and the costs of compliance for business and individuals.

In the years ahead we will improve regulation so that Australia will be among the most efficiently regulated nations in the world—in the top five globally—reducing business costs by billions of dollars annually and improving the global competitiveness of our food industry.

Our Goal For 2025

Australia will be among the top five most efficiently regulated countries in the world, reducing business costs.

4.5.1 Providing better regulation

Regulation touches a broad range of areas, from paddock to plate—from controlling which chemicals can be applied to a crop, to setting rules for waste management, to managing industrial relations at a factory. Like many Australian industries, the food industry is regulated by different levels of government. The Australian Government will

keep working actively with state and territory governments to improve regulations across the economy and reduce gaps and overlaps, including through the Council of Australian Governments (COAG).

Under the National Partnership Agreement to Deliver a Seamless National Economy, COAG made significant progress in implementing regulation and competition reforms across the economy. COAG built on this progress in developing the National Regulatory and Competition Reform Compact in 2012. This agreement sets out for the first time how governments and business will work together to develop, implement and review significant national regulatory reforms.

The Australian Government is working with the food industry to improve regulations and we have made substantial progress on agricultural chemicals and veterinary medicines, food labelling and biosecurity. These reforms will benefit industry and consumers directly and indirectly.

While Australia is improving regulation and reducing barriers to entrepreneurship, so are other countries. This will add to competition in the Asian century. To support growth in the food industry, we will continue reviewing regulations to identify where further reform is needed. The Productivity Commission will undertake a regulatory review of the food system, from paddock to plate. This review will build on past work but also go beyond just food safety regulations and look at the disproportionate impact of regulation on small food businesses. It will also look at ways to reduce costs to business from unnecessary or poorly targeted regulation.

Social licence: meeting the community's changing expectations



Community expectations, community attitudes, consumer trust, public opinion, community perceptions or social licence. Whatever you call it, it means the same thing—the community's ongoing acceptance of an operation or activity. While the concept can seem elusive, it is part of our democratic society.

Community expectations stem from the beliefs, perceptions and opinions held about an activity or operation, but they are not etched in stone. Expectations change over time in response to new information, increased understanding of the consequences of actions or changing views about what is acceptable. For example, whale hunting was one of Australia's first primary industries but today people turn out in their hundreds to support rescue efforts when whales are stranded on local beaches.

People express their expectations in many ways—by buying goods with certain credence values (like free-range eggs), through consumer boycotts, protests and, in some cases, more extreme action such as illegal activities. Modern communications technology and social media channels are changing how people engage in debate, expanding the flow of information, widening the scope of the conversation, broadening opportunities for participation and increasing expectations about the speed of change.

Businesses and industry bodies have to proactively adapt to address changing community views or they risk community objection and community pressure on governments to regulate their activities. Industries and individual businesses have a responsibility to actively engage with the community, understand concerns, share information and build relationships. Industries that show how their actions maximise benefits and minimise harm to society earn ongoing trust and goodwill, and they benefit economically from public endorsement. For example, some fisheries that have demonstrated their environmental sustainability by gaining the endorsement of the Marine Stewardship Council have reported being able to attract a price premium for their products.

In a democratic society like Australia, governments are elected by the community and are expected to act in line with society's expectations, including when these change. While governments can inform community views, they cannot assure community acceptance of an activity—this can only come from the community.

Governments can provide accurate and balanced information to inform public debate. We do this for Australia's agriculture and food industries by funding work to collect and disseminate information, such as the State of the Environment reports and the Fishery status reports series.

Governments can also help industry develop voluntary rules or support research and development that will help businesses meet consumer needs and community expectations.

Sometimes, despite everyone's best efforts, the community becomes opposed to an activity. When this happens in a democratic society, a government may need to use its tools of regulation and legislation to address community concerns. In such cases in Australia, we will be consultative, transparent and use the best available information and evidence in making decisions in the interests of the whole of the community.

Supermarkets and supply chain relationships



Australians spend over \$371 million on food and beverages each day (DAFF 2013). The decisions people make about what to buy and where to shop influence what products are available and where they are sold. Most consumers can choose where they buy food—whether from major supermarkets, farmers' markets, specialty stores or online.

The majority of Australians choose to purchase at least some of their food from supermarkets. Around two-thirds of Australia's total food expenditure takes place in supermarkets each week (Spencer & Kneebone 2012). While more than two-thirds of supermarket food and liquor sales take place in the two major chains, Coles and Woolworths (Spencer & Kneebone 2012).

Although they may not shop exclusively at the major supermarkets, many consumers shop at supermarkets because of cost, quality and convenience.

During consultation on the National Food Plan green paper many stakeholders raised concerns about the dominance of the two major supermarket chains and whether the Australian food system is competitive enough.

A changing market place

The retail grocery market has continued to evolve, including the expansion of ALDI and the entry of Costco into New South Wales, Victoria and the Australian Capital Territory. These businesses have the size and supply chains to compete with the two major supermarket chains and provide additional choice to consumers and suppliers in some parts of Australia. Farmers' markets are also increasing in popularity as an alternative to shopping at a supermarket (Chapter 5). Another change is the expanded offering of private label goods available in major supermarkets.

Recent action

In September 2012 we convened a forum of senior representatives from the food industry to discuss how to achieve strong competition and fair trading across the supply chain to ensure a fairer deal for everyone. A working group—including Coles, Woolworths, the Australian Food and Grocery Council and the National Farmers' Federation— proposed that a voluntary industry code could be made enforceable under competition law.

The ACCC is actively gathering evidence about dealings between major supermarket chains and their suppliers—and as of early 2013 had spoken to around 50 suppliers. The ACCC can take action against any business which is found to have breached Australia's competition laws.

Future options

While some stakeholders have called for further regulation of the major supermarkets, we need to be careful to ensure regulation does not stifle competition or impose unnecessary red tape and costs on businesses that may lead to higher food prices for consumers.

We will continue to work to improve the competitiveness of our food industry in partnership with industry and the community. Businesses and individuals with concerns about potential anti-competitive or unconscionable conduct can contact the ACCC. Consumers can also use their purchasing power as a significant driver for change.

4.5.2 Creating competition

Competitive markets benefit all Australians and position our businesses to succeed in the Asian century. Competition creates a strong incentive for businesses to reduce costs, employ resources more efficiently and innovate. Competition between businesses places downward pressure on prices and improves the quality and range of goods and services available to consumers in Australia. High-quality goods and services will also be sought in markets overseas. Competition helps businesses access inputs that are competitively priced, such as machinery, energy and fertilisers. This helps them reduce their costs of production and compete more effectively.

While competitive markets provide important benefits, competition is not an end in itself. We recognise that in some situations competitive markets can be secondary to other objectives, such as equity or environmental preservation.

We maintain robust and effective competition and consumer laws to encourage competition across the economy, including in the food supply chain, to benefit all Australians. These laws are enforced by the independent regulator, the Australian Competition and Consumer Commission (ACCC), including through appropriate and proportionate sanctions.

We also encourage trade and investment to increase competition in the domestic economy. Imports can be a source of competition in the domestic market, as domestic businesses are motivated to innovate and find efficiencies to become more competitive against imported products.

Following an ACCC inquiry into the competitiveness of retail prices for standard groceries in 2008, we have promoted competition in the retail grocery sector through a range of

initiatives. Examples include establishing mandatory unit pricing to help consumers compare prices and promoting the Australian grocery market to international retailers.

Trading relationships that are competitive but fair can improve efficiency in the food supply chain and benefit consumers through lower prices and better quality products. Trading relationships in the food supply chain (including between supermarkets and their suppliers) should encourage a competitive and viable industry in the long term. We welcome industry's ongoing efforts to improve trading relationships between supermarkets and their suppliers.

We support an appropriate and comprehensive industry-led approach to improving commercial relationships along the food supply chain. If this process does not deliver the necessary confidence to improve these commercial relationships, we will consider other alternatives.

4.6 Empowering our food regions

Regional Australia is the heart of our food system and will be a major beneficiary of the rewards flowing from the Asian century. A thriving Australian food industry will support our regional economies through successful businesses providing rewarding jobs. Australia's diverse landscape and climate give us many different food growing regions, producing foods ranging from tropical fruit to cool climate vegetables. For example, the Sunraysia-Murray region produces more than 60 per cent of Australia's table grapes (Victorian DPI 2010), while about 37 per cent of our wheat production comes from Western Australia (ABS 2013b). Regional Australia is not just the location for most of our food production; it is also home to about half our food manufacturing jobs.

Gippsland Food Plan



Image courtesy of Graeme Nicoll

If you eat cheese or yoghurt or drink milk, you're likely to have tasted something from the Gippsland region—it produces almost a quarter of Australia's milk. But this south-eastern Victorian food bowl isn't just about dairy. It also supplies large quantities of beef and vegetables to markets all over Australia and overseas and has a productive fishing industry.

Food-related activity in Gippsland generates over \$2 billion in exports and more than 14 000 jobs, and is responsible for over \$1.3 billion in expenditure on goods and services.

To ensure Gippsland is positioned to seize opportunities and to meet challenges such as demographic change, changing markets and climate change, the Gippsland Regional Development Australia Committee is developing a regional food plan.

The Gippsland Food Plan will engage a range of stakeholders to develop a focused action plan. Implementation in the years ahead will focus on enabling infrastructure, transforming capability, reputation and investment attraction, and advocacy and policy development.

The Gippsland Food Plan recognises the importance of proactively engaging with national and state food strategies and of linking policies across all levels of government. It will be a strategic platform that stakeholders can build on to achieve positive economic and social outcomes for the region.

The Gippsland Food Plan will support industry capability by encouraging the development of food-related products that will add value in existing markets or enable entry to new

markets—securing a sustainable long-term presence for the Gippsland food system and increased productivity for the region.

Building a sustainable food future for northern Australia



We want Australia to develop its full production potential. Asia's strong demand for high-quality food means agriculture will provide opportunities across the north, from Western Australia to Queensland.

The challenges of the north

We are committed to encouraging food production in northern Australia to increase trade, provide jobs and build communities. However, developing the potential of northern Australia as a food production region involves some challenges and any development needs to be culturally appropriate and environmentally sustainable.

The north is a vast area with a diverse mosaic of ecosystems. It is home to a scattered population with differing attitudes toward the land and how it should be used. Instead of a one-size-fits-all approach we need to tailor solutions that address the needs of particular places and communities. Understanding where to make investments and what risks are involved is critical for development.

Collaboration is the key

We contributed \$8.5 million to the Northern Australia Sustainable Futures program to collaborate with the governments of Queensland, Western Australia and the

Northern Territory on sustainable development in the north. One initiative funded under the program was a strategic development plan for the northern beef industry. The plan focused on efforts to improve the resilience and economic viability of the industry and to support sustainable growth.

The North Queensland Irrigated Agriculture Strategy is a \$10 million joint collaboration between the Australian and Queensland governments that is also focused on building capacity for commercial irrigated agriculture across the north. The strategy taps into local partnerships, local knowledge and world-class research techniques to identify sustainable development opportunities and challenges. A key part of the strategy is a complete assessment of the potential for sustainable water resource development in the Flinders and Gilbert catchments in north Queensland.

The North Queensland Strategy, a regional development initiative between the Australian and Queensland governments, brings together the four northern Queensland regions into a single economic plan. It includes support for tropical expertise and innovation in production—of tropical fruit, cattle and sugar cane, for example—and for long-term infrastructure planning.

Logistics logic

We are looking at the critical supply chain and infrastructure needs of northern industry to make sure we are investing in areas that support growth of new agricultural developments. The Food and Fibre Supply Chain Study, developed with state research bodies and Pilbara Regional Development Australia, focuses on identifying new opportunities in irrigated agriculture and the critical supply chain, and infrastructure investments required to foster these opportunities across the north.

We are investing in critical infrastructure for the north through the Regional Development Australia Fund. **Rounds one and two funded 81 projects across Australia and invested nearly \$350 million in projects valued at nearly \$1.2 billion.** One project is the extension of Emerald Airport, including upgrading cargo bays to improve cargo movement.

Australia's diverse regions face unique challenges and opportunities—and a one-size-fits-all solution will not address them all. Instead we support solutions that are developed with a community to help address their specific local needs. These solutions recognise that some policies need to be tailored to address regional issues, complementing policies applied across Australia.

We work in partnership with the community to support our food regions. The Regional Development Australia network brings together all levels of government and local leaders to identify local priorities and solutions. We invest in local solutions to locally defined problems through programs such as the **Regional Development Australia Fund (RDAF)**—acting on our commitment to diversify regional economies and improve liveability. For example, through RDAF we have invested \$67.5 million in infrastructure for the food industry, including sheep saleyards, water pipelines, flood mitigation and freight hubs.

Getting involved in your local Regional Development Australia network can help identify priorities and solutions in your area.

Effective and efficient regional policies need bottom-up, community-level input. We are committed to communities defining their own food futures, which can include developing

a regional food plan. Some regions have already begun to do this. Regional food plans help identify opportunities and assist regions in attracting funding to address their priorities.

Regional food plans will feed into the five-yearly review of the National Food Plan and inform the development of future national food plans. Regional food plans will not replace state or national policy or strategic direction. Rather, they will allow regions to align their goals and challenges with policy across all levels of government. We will encourage more regions to develop regional food plans where there is local interest to do so.

The unique character of Australia's food regions provides opportunities for regional branding and enables businesses to differentiate what they produce from that of other places. For example, Regional Development Australia Whyalla and Eyre Peninsula created an Eyre Peninsula brand emphasising the quality of their seafood. Such branding can help regional businesses meet the needs of increasingly discerning customers in Asia and around the world, allowing them to capture premium

In developing food plans and brands, regions can learn from each other. We will help regions to distribute information to other regions and to the wider community and tourists. As a first step to improving access to information, we will promote food-related content, such as news stories, on the myregion website (myregion.gov.au). We will encourage collaboration and the integration of food into regional plans by providing opportunities for regions with an interest in food to come together and discuss best practice and regional branding.

5 Families and communities

A food-literate community accessing safe, affordable and nutritious food



Food is a central part of daily life and culture. Because we all need to eat, food resonates with every person, every family and every community. The foods Australians eat influence whether they meet their aspirations for health and quality of life. Ensuring safe, nutritious and affordable food is available and accessible for all Australians now and into the future is a priority for us.

5.1 Maintaining food security in Australia

Food security encompasses various factors that shape the food supply for individuals, families and communities. While there are many definitions of food security the Food and Agriculture Organization of the United Nations defines food security 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 2009).

In Australia we are in the enviable position of having adequate quantities of high-quality food to feed our population. Australia's food is supplied through domestic production and imports. We produce enough food today to feed around 60 million people (PMSIEC 2010).

Australia faces challenges to food production, including climate change, resource constraints (such as water, fertiliser, energy and land) and a slowdown in agricultural productivity growth (PMSEIC 2010).

We can position Australia to meet these challenges and ensure there is food on Australian tables by maintaining a strong and sustainable food sector and allowing food imports. We will work with industry and invest in research and innovation to help food producers meet challenges and increase production sustainably (Chapter 4 and Chapter 7).

We will continue to support an open trade in food (including food imports) that complements domestic food supply, meets consumer demand and provides competition (Chapter 3).

High levels of employment and our income support safety net mean that food is affordable and accessible for most Australians. Australians spend only 17 per cent of their average income on food (ABS 2010) and we are listed as one of the world's top five countries for affordable food (Economist Intelligence Unit 2012). For 90 per cent of Australians, food prices are within 10 per cent of those found in capital cities (BITRE unpublished). Despite this, some people still find it difficult to access and afford nutritious food.

There is no agreed estimate of the number of people experiencing food insecurity in Australia. Estimates of its prevalence by the National Health Survey 2004-05 range from 2 per cent in the general population to 24 per cent in some risk groups, including Indigenous Australians and people living in disadvantaged areas (ABS 2006). The Australian Health Survey, to be released progressively over 2012-14, will include information about important health indicators, including dietary intake, food consumption patterns and food insecurity. Regardless of what the level of food insecurity is in a country as wealthy as Australia no-one should go hungry.

Our Goal For 2025

Australia will have built on its high level of food security by continuing to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage.

5.1.1 Reducing food insecurity in Australia

To achieve an overall reduction in food insecurity in our population, our actions need to target disadvantaged groups that experience higher rates of food insecurity.

Improving access to healthy food in Australia is critical to improving health and quality of life. However, the problems that result in food insecurity are complex and the solutions are not simple. Reducing food insecurity will require a combined effort from governments, industry and the community.

Individual food insecurity comes from sustained low income combined with other factors, which vary from individual to individual and family to family. These factors include other demands on the family budget, disability, social and physical isolation, frailness, chronic illness, poor money management skills and lack of access to reasonably priced food. Some people may also lack the knowledge and skills to make appropriate choices or lack the skills or facilities to appropriately store and prepare food.

Improving food security cannot be achieved by governments alone; it will take combined effort from governments, industry and the community. Addressing individual food insecurity is part of the Australian Government's broader strategy to reduce social disadvantage. We support food security by maintaining a strong economy that generates ongoing employment growth and by providing effective schemes to help people enter employment. Helping people into a rewarding job is one of the best ways to ensure they can afford the food that they need.

Families experiencing food insecurity often require additional support and services. We will continue to refine and implement our programs for disadvantaged groups that look at

an individual or family's situation and make better links with relevant services. These programs include helping people avoid or resolve financial difficulties and providing support services to frail older people and people with a disability, such as assistance with food preparation in the home, delivery of meals, transport and mobility.

We are committed to the social safety net and have improved support for those who need it. For example, since the pension reforms in 2009, the age pension has increased by around 34 per cent for singles on the maximum rate. Our commitment to the **National Disability Insurance Scheme** will support people with disabilities and give them real choice and control over their support, including the ability to manage their own funding.

We recognise the important work of non-government agencies in addressing food insecurity. We support food aid and food rescue services through grants and the taxation system. For example, we provide funding to Foodbank Australia to deliver food and grocery supplies to organisations that help families and individuals in need.

Factors that contribute to difficulties in accessing nutritious food are heightened for many Indigenous Australians living in remote areas. Food prices can be up to 50 per cent higher than in capital cities, supply can be inconsistent and fresh fruits and vegetables scarce. Equipment for food preparation and storage, such as refrigeration, can be limited. On average Indigenous Australians, particularly those living in remote Australia, have significantly higher rates of preventable diet-related conditions than non-Indigenous Australians, with up to 19 per cent of this health gap attributed to diet-related causes (COAG 2009).

For many communities, local stores are the main source of food. One of the key ways to reduce the rate of food insecurity among Indigenous Australians in remote communities is to improve the management of grocery stores and make more nutritious and affordable food available to buy.

We help remote community-owned stores run more effectively by assisting them to address short-term financial and management challenges. We have also established a company—**Outback Stores**—that subsidises stores that are not commercially viable but are important to their remote communities. At the request of a community, Outback Stores will also manage the local store on their behalf and, if a store is profitable, return the profits to the community.

In the Northern Territory, we introduced a licensing scheme and associated support programs. Under these initiatives stores that are an important source of food, drink or groceries for a remote Indigenous community must have a licence to operate. Licensing requires these stores to carry an appropriate range of fresh and healthy food. The scheme has improved store management and access to healthy nutritious food in remote Indigenous communities, and it has been strongly supported by those communities. To continue to improve remote food security, we have extended funding for community stores and licensing in the Northern Territory until 2022.

Indigenous food security



Improving food security in remote Indigenous communities is essential to reducing Australia's overall level of food insecurity.

Sustained effort from Indigenous communities—supported by government agencies and non-government organisations—has seen a steady improvement in the choice and quality of food offered in stores in these remote communities over the past decade (NT Department of Health 2013).

Across the Northern Territory:

- twice as many types of fruit and one-and-a-half times as many types of vegetables were available in 2012 than in 2000
- 80 per cent of fruits and vegetables were rated as 'good' in 2012 compared with only 66 per cent in 2000
- availability of lean meat and frozen vegetable varieties nearly doubled, and availability of high-fibre bread choices almost tripled between 2000 and 2012.

These achievements are partly due to improved transport and storage facilities in remote stores, and an increase in stores that have put in place a nutrition policy, from 23 per cent in 2000 to 58 per cent in 2011.

Outback Stores, a company owned by the Australian Government is using its experience in retail, logistics and supply chain management to improving access to a reliable, fresh and nutritious food. Outback Stores has partnerships with 29 remote communities across the Northern Territory, Western Australia and South Australia. All profits from store operations are returned to the communities.

We will continue to implement initiatives under the **Aboriginal and Torres Strait Islander Chronic Disease Fund** to promote nutrition and healthy, active lifestyles in Indigenous communities. Over the first four years of operation (from 1 July 2011) the fund will provide \$833 million for activities to improve the prevention, detection and management of chronic disease in Indigenous Australians. Priorities include tackling chronic disease risk factors, such as poor nutrition and obesity, and delivering prevention programs and community education initiatives to reduce the prevalence of these risk factors. State and territory governments play a significant role in addressing food insecurity. They also have primary responsibility for regulating food businesses and food supply. Addressing food insecurity in remote Indigenous communities requires action across all levels of government. To ensure that we have the right framework in place, we will work with states and territories to review the **National Strategy for Food Security in Remote Indigenous Communities**.

5.1.2 Maintaining food security in emergencies

While Australia has a high level of food security overall, natural disasters, adverse weather conditions and other unexpected events (such as pandemics) can disrupt food production, supply and distribution.

Recent trends in the food supply chain include seeking efficiency gains through centralisation and just-in-time management practices. These trends and the reliance of the food sector on power, water, transport, access to diesel fuel and some imported ingredients and packaging materials could reduce the food sector's resilience to unexpected events and pose challenges for the ongoing stability of our food supply (DAFF 2012a).

While recent disasters such as floods and fires have demonstrated the capacity of the food industry to respond effectively in a time of crisis by diverting resources from one location to another, the food industry may struggle to maintain continuity of food supply during a national emergency (such as a severe influenza pandemic), a multi-regional event or significant events occurring concurrently in several jurisdictions.

Recognising that demand for relief services remains high across Australia, we have provided an extra \$83 million for emergency relief services, supporting a range of community and charitable organisations to provide emergency assistance (including food) to people in financial crisis.

We are working with state and territory governments and the food sector to mitigate risks to the production, supply and distribution of food in the event of a major emergency. Our approach is guided by the **Critical Infrastructure Resilience Strategy**, which aims for organisational resilience to support the delivery of essential goods and services (including food) during emergencies. The cornerstone of the strategy is operating an effective partnership between government and business, with critical infrastructure owners and operators sharing information, raising awareness of cross-sectoral dependencies and facilitating collaboration to address impediments.

We will keep working toward enhancing national arrangements to better respond to emergencies. This includes community education initiatives to assist communities be better prepared to support themselves in an emergency. It also includes improving communication and coordination of industry-government interactions, increasing awareness of food supply chain vulnerabilities and addressing any non-food safety regulatory impediments to the food industry maintaining continuity of supply in an emergency.

Ensure your household is prepared for an emergency by having an adequate supply of food, water and essential items to cope in an emergency situation. For more information visit pantrylist.org.au.

5.2 Ensuring the safety of our food supply

Australia has one of the safest food supplies in the world, with a world-class system to manage safety across the food supply chain. We work in partnership with state and territory governments and the New Zealand Government using a risk-based regulatory approach. This is consistent with international obligations and scientific best practice.

The safety of our food supply is critical to maintaining the health and wellbeing of our population. Australia's global reputation relies on the safety of our food supply—food safety is also important for trade.



Image courtesy of Brisbane Markets Limited

Despite an impressive safety record, we cannot afford to become complacent. Unsafe food can result in serious illness, undermine confidence in the food supply system and

affect access to export markets. The cost of foodborne illness is significant, resulting in lost productivity, medical costs and even death.

Ensuring food safety into the future will require vigilance. If we are to manage new and emerging risks, our regulatory environment must continually adapt and be responsive, comprehensive and adequate without being unduly burdensome on industry.

Our Goal For 2025

Australia will be considered to be in the top three countries in the world for food safety, increasing the reputation of Australia's exports.

By 2025 we would like to see Australia as one of the top three countries in the world for food safety, improving the wellbeing of Australians and increasing the already good reputation of our exports. To achieve this, we will continue to review and improve our systems for managing food safety. We will assist Australian food businesses to benefit from our reputation by promoting our food safety systems internationally.

We will continue to develop and maintain food standards that are based on the best available scientific evidence. These standards apply to all food sold in Australia, whether it is imported or produced domestically. We will continue to ensure foods that have been produced or processed using new technologies— such as genetically modified foods—are assessed as being safe before they are allowed to enter the food supply, and we will continue to ensure chemical products used in production are safe and used appropriately.

Some of the responsibility for consuming safe food lies in the home. We will help consumers understand how to handle food safely by supporting the Food Safety Information Council, which produces education materials.

To manage known and emerging food safety risks we will continue to work with producers, processors, importers and state, territory and New Zealand government regulators. Governments at all levels will continue to monitor our food supply to ensure standards are enforced and consumer health and safety is adequately protected.

We will continue to be proactive to reduce the overall incidence of foodborne illness. We will continue to coordinate foodborne illness surveillance to better understand its causes. We will ensure food safety interventions are well targeted, that research and development priorities are set for the future, and that the collection of data underpinning decision-making is conducted efficiently.

We will actively build on partnerships with national and international agencies to assist in identifying emerging risks, sharing information, data and best practice and promote internationally consistent approaches to managing food safety.

About a third of all food poisonings come from food handling mistakes in the home, improve your knowledge on handling, storing and cooking food safely. For more information visit foodsafety.asn.au.

Food as culture

Food is part of all of our lives

Food is more than the sustenance vital for health and wellbeing. It plays a social, symbolic, political and economic role in our lives. Preparing, sharing and eating food are

part of family life and participation in communities. Food can be a source of entertainment, pleasure and income.

Although eating is a universal human experience, what we eat, when and how we prepare and share food is shaped by background, religion, health needs, taste preferences, budget, ethnicity and a range of other factors. As food is cultural, our experiences shape our decisions and preferences. This means that food and eating are broader than just dietary requirements and nutrition, touching on social values, meaning and beliefs.

Australia's distinctive food culture is shaped by its history and people

Sharing food has continued to play a central role in Australian life—with family at the dinner table, with friends on the weekend and in our festivals and celebrations.

For thousands of years, Indigenous Australians lived as hunter-gatherers, with their relationship to country shaping the way they used environmental resources for food. Migrants brought their cultures and food with them to Australia, creating a multicultural society in which restaurants and supermarkets offer an increasingly wide range of foods. Sharing food is part of a process of cultural exchange and learning—meaning that you might find macadamias, curry paste, olives and Vegemite in an Australian pantry and bok choy, kangaroo fillets and feta cheese in an Australian fridge.

5.3 Accessing healthy and nutritious food



Along with having enough food to feed the population, our food supply must also meet energy and nutrient requirements for good health. Good nutrition not only depends on the availability of quality foods, but on people having the desire to eat healthy foods and having sufficient knowledge and understanding to make good choices from what is available.

Despite the availability of a high-quality, nutritious and safe food supply, many Australians have poor diets because they eat too many energy-dense and relatively nutrient-poor foods and/or not enough vegetables, fruit and wholegrain cereals.

Poor diet is associated with obesity, heart disease, diabetes and other diet-related chronic diseases. Genetics and an increasingly urban and sedentary lifestyle also contribute to poor health.

Australia has one of the highest rates of obesity in the world. Nearly two-thirds of adults and one-quarter of children are either overweight or obese (ABS 2012a). Rates of obesity in Australia have increased for both adults and children over the past few decades (AIHW 2012). Being overweight or obese can contribute to development of chronic diseases, including coronary heart disease, type 2 diabetes, stroke, osteoarthritis, sleep apnoea and some cancers (AIHW 2012).

The economic burden on the healthcare system and social costs from lifestyle-related chronic diseases, particularly obesity, are significant and expected to increase. Obesity is one of the greatest public health challenges facing Australia. Addressing this trend is a priority for us.

Through the **National Partnership Agreement on Preventive Health (NPAPH)** we are investing a record **\$932 million over nine years** (2009-18) to implement initiatives that promote healthy behaviours and tackle the rising prevalence of lifestyle-related diseases, including obesity. Through this initiative, we aim to lay the foundation for healthy eating behaviours within communities, schools and workplaces, and increase the proportion of children and adults meeting nutritional guidelines. A feature of the NPAPH is the establishment of the Australian National Preventive Health Agency, which supports the development and implementation of evidence-based approaches to preventive health intervention.

We promote nutritious and healthy food and provide information to help consumers understand the effects of food choices on their health. The **Australian Dietary Guidelines** provide information on how to achieve a healthy diet, including the types and amounts of foods, food groups and dietary patterns that promote health. Based on the latest scientific evidence, the guidelines are maintained by the National Health and Medical Research Council (NHMRC) and promoted by the public health sector, industry, educators, researchers and the broader community. The guidelines have been reviewed and were released in early 2013.

We are developing and implementing initiatives designed to create awareness of the health benefits of nutritious food. These include education campaigns and healthy eating resources such as the healthy weight guide. The results of the **2011-13 Australian Health Survey** will be used to ensure future measures, messages and advice are targeted to promote the greatest improvements in the health of the population. Healthy eating is also promoted to local communities through the Medicare Locals initiative, which has identified gaps in health promotion and prevention services within local communities, such as lack of information about poor diet and food choices.

The Australian Government works with the food industry, public health groups and individuals to help Australians meet nutritional goals set by the Australian Dietary Guidelines. Through the **Food and Health Dialogue**, the food industry is encouraged to voluntarily reduce the amount of salt, saturated fat, sugar and energy and increase the amount of fruit, vegetables and fibre/wholegrain cereals in manufactured and pre-prepared foods. The Food and Health Dialogue is working to make healthier food choices

easier in quick service restaurants by improving nutritional quality, reducing standard portion sizes and educating customers.

We also work with the NHMRC and other research agencies, including the CSIRO and universities, to invest in research to understand current and emerging health issues and find new ways to improve the nutritional value of manufactured foods.

One of the most worrying trends is childhood obesity rates. We are committed to helping children better understand the importance of making healthy food choices. To promote healthy behaviours in children, we provide practical information and advice on nutrition and physical activity including through the **National Healthy Eating and Physical Activity Guidelines for early Childhood Settings** (Get Up and Grow) and the **National Healthy School Canteen Guidelines**. We are also committed to the Stephanie Alexander Kitchen Garden National Program.

The Australian Government reviews information on children's exposure to the marketing of energy-dense, relatively nutrient-poor foods, particularly those that target children. We also monitor reporting on the effectiveness of industry initiatives and codes and standards that aim to moderate children's exposure to advertisements for energy-dense, relatively nutrient-poor foods. We are developing a guideline framework to provide a consistent method for future monitoring of children's exposure to advertising and marketing of unhealthy food on television.

To help consumers make healthier food choices, governments around Australia are working with industry, public health and consumer stakeholders to develop an agreed labelling system that will see easy-to-understand nutrition information placed on the front of food packages. We are also regulating the way nutrition, health and related claims are made. All health claims must be supported by scientific evidence and will only be permitted on foods that meet specific eligibility criteria, including nutrition criteria.

To guide programs and health and nutrition policies, we are developing a **National Nutrition Policy** with input from state and territory governments, industry and public health organisations. This policy will provide a framework to address key public health nutrition issues identified within the context of the government's preventive health agenda and help guide the development of new initiatives. This policy, combined with current and new initiatives, is part of our specific commitment to put in place a suite of actions focused on the health and nutrition of all Australians.

5.4 Informing our community

All Australians participate in the food system—by growing, making, transporting, buying or eating food. Australians are free to make choices about their participation in the food system but need information to do so.

Informed choices are important because the choices people make about food have consequences for their health and can shape the food system. Information also supports consumers choosing foods that meet their preferences—for a particular mode of production such as organic or free-range, for example.

Our Goal For 2025

Australians will have the information they need to help them make decisions about food.

The Australian Government has a role to play in making sure people have access to the information they need to make decisions and that representations made about food are truthful. Industry also has a role in providing information to consumers.

Australian children have particularly low levels of food literacy—they lack basic understanding of primary industries and food production. For example, in a survey of 1000 Australian students more than a quarter of Year 6 students and more than 10 per cent of Year 10 students identified yoghurt as a plant product (Hillman & Buckley 2011).

We are committed to providing information to the whole community, but recognise that building children's knowledge improves their capacity as future consumers to make healthy food choices.

Knowledge is not only gained from labels or formal education. Participation in activities like community gardening builds understanding about food and production and can shape people's food choices with benefits for their health. For example, participation in community gardening is associated with increased fruit and vegetable intake (Alaimo et al. 2008). Participation may also develop social cohesion and reduce our food waste (Chapter 7).

5.4.1 Supporting food choices through labelling

People are increasingly interested in the foods they eat and may make decisions based on factors such as health and nutrition, where and how food is produced or environmental sustainability.

In many cases, businesses are responding to the demands of their consumers and including more information on packaging or through advertising. Meeting consumer expectations for information on food labels is a challenge given the limited space.

In 2011 we received the report of a review of food labelling (*Labelling logic: review of food labelling law and policy 2011*). The review identified priorities and actions to improve food labelling to better meet consumers' needs and help consumers make healthier food choices. We are implementing our agreed response that aims to maintain marketing flexibility and minimise regulatory burden on businesses. We have adopted a framework to guide our decision-making on food labelling matters that prioritises food safety, preventive health and consumer value issues.

Some of the issues raised in the review of food labelling relate to health and nutrition as opposed to meeting consumer expectations for information. These issues will be dealt with through the **National Nutrition Policy**.

We implemented a new standard for nutrition, content and health claims in January 2013. This new standard allows for an innovative and competitive Australian food industry while ensuring consumers can have confidence in the scientific rigour of claims being made.

We are looking at ways to improve country of origin labelling. We agreed to amend country of origin labelling requirements for food to include all unpackaged beef, sheep and chicken meat, and we will consider extending mandatory country of origin labelling to all remaining unpackaged primary food products. An important part of improving country of origin labelling is improving consumer and industry understanding. In October 2012 the ACCC issued guidance to provide clear advice about country of origin labelling

claims. We will assess consumer understanding of and needs for country of origin labelling regulation through the Australian Consumer Survey in 2015.

Traditional labels are one way to provide information about food products to consumers. Opportunities also exist for business to respond to the needs of consumers directly. Changing technologies and communication channels (such as the internet and smart phone apps) complement information provided on labels and packaging, delivering consumer information in an interactive and personalised manner. Beyond this, consumers are using digital information from shopping sites, rating services and social networks to obtain information that interests them.

The information provided to consumers must be accurate. We have laws to ensure statements made about products are truthful and not misleading. To help businesses provide consumers with consistent and accurate information about food products, industry has introduced self-regulatory and co-regulatory approaches, including industry codes of practice and voluntary industry standards.

Information in the palm of your hand



Image courtesy of GS1 GoScan

Consumers are increasingly interested in where their food comes from. They want more information about the products they purchase and the companies that produce them.

Only so much can be captured on a food label, so consumers are seeking information from online shopping sites, product rating services or their social networks. Mobile technologies and the internet are important platforms for consumers to access this kind of data.

The not-for-profit standards body GS1 Australia has collaborated with the Australian Food and Grocery Council to provide consumers with information at their fingertips through a free mobile application called GoScan.

Using the app, consumers can scan or enter the barcode of a product to view the manufacturer's information on allergens, ingredients, nutritional value, country of origin and suitability for special diets. The app also has recipes and information on how to store and prepare the product. Technology will continue to provide new ways for consumers to get the information they need to make decisions about food.

Stephanie Alexander Kitchen Garden National Program



The Stephanie Alexander Kitchen Garden National Program is helping change the way children approach and think about food. Through the program children learn where food comes from and how to prepare healthy, seasonal, nutritious meals and, most importantly, to sit together to enjoy delicious, fresh food.

From outback Coober Pedy to tropical Alawa to beachside Bondi, around 35 000 children are happily getting their hands dirty and learning how to grow, harvest, prepare and share fresh, healthy seasonal food. The real-life experiences students gain encourage positive behaviour change—benefits that can extend to their families and to the broader community. Family and community members can participate in the program by volunteering at schools.

The Stephanie Alexander Kitchen Garden National Program is leading the world in bringing enjoyable food education to children within a systematic, integrated and effective model. We have joined state and territory government and corporate partners

in funding this valuable program. **We have invested \$18.2 million to develop gardens in more than 650 schools** across Australia to 2015.

5.4.2 Education

Children are the future of Australia's food system and it important to teach them about food, nutrition and agriculture. Teaching children is not just the role of government. Industry, primary producers, parents and schools all contribute to building the knowledge of our young people. Children's behaviour and attitude toward healthy living can be influenced by teaching them about where food comes from, how it is produced, and how to prepare it.

Our Goal For 2025

Australian children will have a better understanding of how food is produced.

Students need to develop a sound understanding of the contribution of agriculture and primary industries to Australia, including food, at school. Under the Australian Curriculum, students from Foundation to Year 10 can learn about the food they eat—including how food is produced and marketed, and the sustainable use of resources and waste recycling. We support the inclusion of food and agriculture in the curriculum, and the way these themes are embedded in relevant learning areas by the Australian Curriculum, Assessment and Reporting Authority (ACARA). We are committed to working with state and territory and non-government education authorities through ACARA to ensure the curriculum is implemented in Australian schools. Over the next two years **we will invest \$1.5 million in developing innovative resources and providing professional development to support teachers to deliver lessons about agriculture.**

Supporting the teaching of food and its production will build on the coverage of healthy, active living in the Australian Curriculum for health and physical education. The development of resources will support existing commitments to building the knowledge of children through the Stephanie Alexander Kitchen Garden National Program, which teaches primary school children how to grow, harvest, prepare and share fresh food.

5.4.3 Participation

Information about food does not just come from labels or the classroom. People also learn about food from growing, buying and eating food, from the media, marketing and from talking to food producers and others in the industry.

Across Australia, interest and participation in community gardens, city farms, school kitchen gardens, food hubs, cooperatives and farmers' markets is growing. This reflects people's desire to develop their food knowledge, access fresh and healthy food, and participate in social interactions around food. Knowing how to grow food and having a space to do so gives some people a sense of food security and can build connections between people and the source of their food.



Diversity and choice

Australia's food system is diverse. While most communities have a variety of options to access food, Australians spend around two-thirds of their weekly food budget in supermarkets.

Changes in demographics, aspirations and technology have altered our food system. These changes are clear in the emergence of online purchasing, direct sales, virtual supermarkets and a range of community food initiatives—for example, the number of farmers' markets doubled between 2004 and 2011 (DAFF 2012b). Numbers of specialist retailers, such as butchers, greengrocers and delicatessens, have also been growing over the past decade (Spencer & Kneebone 2012).

There is diversity in the foods available for us to buy. Shops stock new varieties of produce, such as baby cucumbers, kumatoes and jazz apple, as well as products introduced from other countries, such as miso paste and couscous.

Many people are interested in food. Some are interested in the provenance of their food and are willing to pay for specialty produce and products from the local area. Some regions have responded by increasing the visibility of their produce through regional branding. Many restaurants promote dishes based on the origin of their ingredients.

The diversity of our food system is also apparent in the way our foods are produced. We can choose to purchase organic, biodynamic or conventionally produced food, or Australian grown or fair trade, or produced to meet religious requirements. Some people grow their own food at home or in a community garden.

The food system is not static. Digital innovation will continue to create new channels for food distribution. It's possible that farmers will sell directly to their customers via the internet, families may partner with a farmer to share the risk and reward from production, and virtual supermarkets could become more commonplace.

Households vary in shopping behaviour and spending, and in values and preferences that motivate their decision-making. Consumer preferences, *as expressed by the foods people purchase, shape the food system.*

We have supported community gardens, farmers' markets and other activities through programs with objectives around education, health and social cohesion, including the Stephanie Alexander Kitchen Garden National Program. We support volunteering and other community activities that enable people to learn about food.

The NBN also provides opportunities for people to participate in social networks around food, share experiences, build knowledge and reach out to a wider community.

To encourage more participation in community gardens, farmers' markets and other activities, we will extend existing support with \$1.5 million in new funding. We will improve coordination between existing programs and make information more accessible.

Your purchasing decisions help shape the food system. Spend your money in a way that supports the food system you want.

6 Global food security

Around 870 million people are chronically undernourished because they cannot access enough food to meet their daily nutritional requirements. Two-thirds of these people live in the Asia-Pacific region (FAO 2012).

The causes of food insecurity are complex and include poverty, poor infrastructure and a lack of social protection (such as access to a regular income), water and education. In recent years, food price spikes have contributed to riots and political demonstrations in some developing countries, affecting national and regional stability.

As a wealthy country and responsible global citizen, Australia has an obligation to help alleviate the suffering caused by food insecurity. Food security in our region is in our national interest because it promotes stability and prosperity.

Our Goal For 2025

Australia will have contributed to global food security by helping farmers in developing countries gain access to new agricultural technologies.

Australia is committed to achieving the United Nations Millennium Development Goals, including the target to halve the proportion of people suffering from chronic hunger by 2015. Progress has been made toward this target, with the number of those undernourished declining by around 132 million over the past two decades.

However, food security remains a critical global issue—unless we reduce food waste agricultural production must increase by 60 per cent over the next 40 years to meet the rising demand for food (FAO 2011). Changing diets, growing urbanisation, natural resource constraints and climate change are also set to affect food availability and accessibility to 2025 and beyond. These factors will contribute to the challenge of reducing food insecurity.

6.1 Providing technical and development assistance

One way to improve global food security is to boost the global food supply by using resources more efficiently and increasing agricultural productivity. Australia's expertise in agricultural and fisheries technology, water resource management, economics and policy— supported by strong education and research institutions—allows us to provide technical assistance to developing countries. This includes helping our development partners adopt farming techniques and processes to achieve productivity gains.

We do this by sharing our research and development expertise through Australian and international organisations, such as the Australian Centre for International Agricultural Research (ACIAR) and the CSIRO. This work helps developing countries produce food and manage fisheries resources sustainably and contributes significantly to improving their agricultural productivity and capacity. Our food production and the overseas application of Australian agricultural research and expertise help feed up to 400 million people (Prasad & Langridge 2012).

Australia contributes to global food security and helps poor people in developing countries access food by providing development assistance aimed at improving

incomes and employment. This improves rural livelihoods by helping people, particularly women, earn enough money to buy food.

Australia also works with developing countries to help build resilient communities that can respond effectively to food security challenges. Our work helps improve social protection, community leadership and access to the financial services needed to start small businesses, build family assets and insure crops.

The Australian Government will continue to provide development and technical assistance by working with our development partners. We will strengthen our international agricultural research partnerships, including through the **Australian International Food Security Centre**. The centre is helping accelerate the uptake of technologies and practices by smallholder farmers to improve the availability of safe and nutritious food. The centre also focuses on building institutional and individual capacity across Africa.

Playing a key role in improving food security in our region



Image courtesy of the Australian Centre For International Agricultural Research

Nasima, a farmer from Bangladesh, became the sole breadwinner for her family after she lost her husband in Cyclone Sidr in November 2007. As part of an Australian Centre for International Agricultural Research (ACIAR) project Nasima and other farmers in the Babuganj district near Barisal in Bangladesh are growing alternative crops during the dry season to their boost incomes and reduce poverty.

Nasima's wheat crop yielded 3.7 tonnes per hectare, one of the highest yields achieved in the Barisal district. She has sold surplus wheat and mung beans to earn a modest profit for her family. The success of farmers like Nasima has motivated neighbouring farmers to grow wheat in the dry season.

Solomon Islands farmers Samson and Janet Sonia believed it was normal when yields for their sweet potato crops were sometimes low. An ACIAR-funded project led by the

International Potato Center identified viral diseases as the cause of their low yields and introduced new varieties of sweet potato. These varieties include the orange-fleshed Beauregard, which provides high levels of beta-carotene that the body converts into vitamin A. Vitamin A deficiency is prevalent in the Solomon Islands and other Pacific Island countries.

After attending a farmer field school and implementing the recommendations from the ACIAR project, Samson and Janet began growing the Beauregard variety. They are reaping the financial rewards from a bountiful harvest, selling their produce at local markets in the capital, Honiara. They are also helping improve the health and wellbeing of their region.

6.2 Reforming global markets and seizing the benefits of trade

Beyond development assistance, we seek to improve global food security by supporting a rules-based multilateral trading system and open markets that allow food to move freely to where it is needed most.

Reducing trade barriers, combined with improving agricultural policy settings and governance, enables developing countries to improve productivity and access to domestic and global markets. This approach will help to increase incomes and improve food availability and affordability, thus improving global food security. We will strive for further reform of global agriculture and food markets to improve the food security of developing countries.

To help developing countries engage in multilateral trading systems and regional initiatives, Australia provides trade-related development assistance through the Aid for Trade program. The program helps developing countries effectively negotiate and implement international and regional trade agreements. It also provides investment in trade-related infrastructure, such as roads, ports, wharfs and airports, to reduce the cost of doing business.

6.3 Helping with climate change and environmental degradation

Climate change and environmental degradation are major challenges to sustainable development. People living in developing countries are particularly vulnerable to environmental changes that can affect access to food. These changes include declining water quality, overexploitation of fisheries, and increases in the frequency and severity of droughts, floods and other climate-related natural disasters.

Through its aid program, Australia helps the most vulnerable in least developed countries and small island developing states adapt to the effects of climate change. We do this by protecting infrastructure, developing alternative farming practices and improving understanding of climate change science and planning. Australia is engaged in key international forums to minimise carbon emissions and address the loss of biological diversity, land degradation and the ecological health of international waters.

6.4 Helping in times of emergency

While the Australian Government's contribution to global food security focuses on medium to long-term solutions, we also provide short-term assistance when needed. We do this by funding international humanitarian relief organisations, such as the World Food Programme, which ensure emergency food assistance is available to those most in need during crises such as famines and natural disasters.

By continuing to be a reliable and effective development partner, further reforming global agriculture and food markets and providing short-term assistance when needed, the Australian Government aims to have contributed to significantly improving global food security by 2025.

Buying foods from developing countries can help reduce poverty in the world's poorest nations.

7 Sustainable food

A productive and resilient natural resource base underpinning our food production

We must use and manage our productive natural resources sustainably so we can produce food today and for future generations. The quantity and quality of food we produce is directly affected by the condition of natural resources— including biodiversity, soil, water, native vegetation and oceans.

Historically, using natural resources for food production in Australia has had environmental costs such as soil erosion and degradation of inland waterways. More recently we have been working to improve the condition of our natural resources. Farmers and fishers are doing important work to achieve this but we must continue to innovate and adapt to changes.

The future holds many challenges. These include increasing competition for land and water, limits on inputs, the effects of changing rainfall and temperature patterns, threats from pests and weeds, pollution, overexploitation of resources, the impacts of consumer food choices and consumption, and increasing community expectations about how our land and oceans are managed.

We are committed to supporting Australian farmers and fishers to adopt sustainable and innovative practices to increase productivity, build a resilient landscape that can cope with a changing climate, and protect our environmental assets. We also want to demonstrate our sustainability by developing, with industry, sustainability indicators for agriculture and by reporting on our fish stocks.

Our Goal For 2025

Australia will produce food sustainably and will have adopted innovative practices to improve productive and environmental outcomes.

7.1 Producing food sustainably

7.1.1 Land use

Land used for agriculture covers over 60 per cent of Australia's landmass, and we are in the fortunate position of having the world's highest level of arable land per capita. Land use is continually changing and the Australian Government recognises that planning for future land use must be considered carefully.

State and territory governments are responsible for land use planning. Some states and territories have developed, or are reviewing, policies for protecting prime agricultural land.

We are confident that multiple land uses can coexist and are committed to ensuring Australia's land provides multiple benefits to current and future generations. Our sustainable population strategy, ***Sustainable Australia, Sustainable Communities: A Sustainable Population Strategy for Australia***, will help ensure population change in Australia is compatible with the economic, environmental and social wellbeing of

Australians. This strategy includes being able to produce food for our local community and the world.

Recognising the complexity of land use planning, the Australian Government will continue to collaborate with state and territory governments on frameworks to assist decision-making, including:

- the **National Urban Policy**—which includes consideration of the potential loss of productive land to urban expansion and development
- the draft **Multiple Land Use Framework** for the minerals and energy resource sector—which includes land access and land use issues related to agriculture
- the benefits of a more coordinated approach to protecting Australia's agricultural land through the Standing Council of Primary Industries.

With state and territory governments, we will continue to invest in collecting, storing and analysing data and making land use information available to the community. The **Australian Collaborative Land Use and Management Program** (ACLUMP), run jointly by the Australian, state and territory governments, promotes development of nationally consistent information on land use and management practices and makes this information available to the community. Information delivered through ACLUMP informs land use planning and is used in the development of responses to issues such as urban expansion, sustainable resource management, and climate change adaptation and mitigation.

7.1.2 Soil

Australia's soils play a critical role in producing food. Soil is essentially a non-renewable resource because it forms and regenerates very slowly but can degrade rapidly. Australia's soils are ancient, strongly weathered and nutrient poor. Erosion, soil acidification, salinity, depletion of soil carbon, and depletion and changed dynamics of soil biota reduce the land's capacity to produce food. Increasing agricultural productivity in the context of a changing climate relies in part on improving soil condition.

To raise awareness of the important role soil plays in agricultural productivity, we have appointed a soils advocate. The **Advocate for Soil Health** is engaging with a range of stakeholders, from scientists to farmers, on the importance of healthy soils and discussing challenges, success stories and innovative solutions.

Industry practices are improving (Barson et al. 2012) but more can be done, particularly in managing soil acidification, ground cover and better matching fertiliser applications to soil and plant needs. We are working to improve the condition of our soils through the **Caring for our Country program**. By providing information, establishing trial sites and demonstrations, the program helps farmers develop and adopt sustainable and innovative practices. The **Carbon Farming Futures Program** also contributes to improving soil condition, and aims to reduce emissions or sequester carbon in our soils (Chapter 4).

To focus our research efforts, we are leading the development of a national soil research, development and extension strategy with a wide range of stakeholders. The strategy, expected to be released in late 2013, will enable better collaboration across industry and research and extension organisations, and set priorities and actions to maximise investment in improving soils. We will continue to invest in the **Australian**

Collaborative Land Evaluation Program, which aims to improve the collection, storage and accessibility of soil information and data for the community.



Image courtesy of GM and WR Green and Co

Caring for our Country—managing soil acidity



Soil acidity is an economic and natural resource threat in Australia. The severity and extent of soil acidification has increased in many regions due to inadequate treatment and/or intensification of land management (Australian State of the Environment Committee 2011).

Soil acidity is a particular problem in Western Australia's south-west agricultural region, where 80 per cent of soils are acidic, costing an estimated \$498 million annually in lost production (Herbert 2009). Heightening the challenge is a lack of information about the extent of the problem in the long term, and a risk that damage could be irreversible.

The impact of soil acidity can be minimised if growers know about the condition of their soil and can develop effective management plans. **Through Caring for our Country, the Australian Government has invested \$1.1 million to help farmers manage soil in south-west Western Australia,** funding workshops, forums and soil sampling to identify high-risk locations.

Farmers see benefits of managing soil acidity and gain skills and confidence to implement new practices. Helping farmers change their practices will result in increased productivity and environmental outcomes.



7.1.3 Water

Australia's food system, from agricultural production to processing, depends on reliable access to good quality water. Our water supply can vary considerably from year to year. Australia is the driest inhabited continent and many inland water environments are degraded. Competing uses for scarce water resources are increasing and a changing climate will affect the availability of water in the future. Australians need to improve water use efficiency.

We are helping the food industry use water more efficiently, which in turn will improve the health of our water resources. Under the *National Water Initiative*, the Australian, state and territory governments are implementing water reforms, including water planning and entitlement reform, improving information about water availability and use, enhancing water markets and improving institutional arrangements.

A significant element of national water reform is the **Murray-Darling Basin Plan**, finalised in November 2012. It delivers on our commitment to a plan that restores our rivers to health, supports strong regional communities and sustainable food production. Our more than **\$15 billion investment in the Water for the Future initiative is supporting the National Water Initiative**, including investment in infrastructure to improve water use efficiency (on and off the farm) and supporting irrigators and food processors position themselves for a future with less water.

We are working with the state and territory governments to develop a **National Harmonised Regulatory Framework for Coal Seam Gas** to help ensure a balance between agricultural, urban and coal seam gas developments. We are also funding scientific research on water-related matters associated with coal seam gas and large coal mining developments. A new national partnership agreement with states and territories considers advice from the Independent Expert Scientific Committee when making decisions on such developments.

Agriculture may also affect the quality of our water through the run-off of nutrients, pesticides and sediments. We will continue to work in collaboration with state and territory governments to protect and enhance water quality through the **National Water Quality Management Strategy**. Through the **Caring for our Country program**, we will increase the adoption of sustainable and innovative management practices to reduce the risk of run-off from agricultural land, improve the health of the Great Barrier Reef lagoon and increase farm profitability.

7.1.4 Native vegetation

Native vegetation supports the productive capacity of agriculture and has environmental, social and cultural values. Native vegetation helps food production by providing shelter and food for animals, supporting pollination and pest management, regulating the climate and controlling wind to prevent crop damage. Farmers play an important role in managing native vegetation to benefit production and the environment, and increase resilience in the landscape.

We help farmers manage native vegetation. For example, through the **Caring for our Country program** we assist farmers to adopt practices that improve productivity and increase the growth of native grasses to reduce soil erosion and the loss of soil nutrients. Our **Biodiversity Fund** helps farmers manage native vegetation on their property to improve biodiversity outcomes and protect Australia's valuable environmental places.

The management of native vegetation into the future, including on farmland, is guided by **Australia's Biodiversity Conservation Strategy 2010-2030** and **Australia's Native Vegetation Framework 2012**, which we have developed in collaboration with the state and territory governments.

Water use efficiency



We have committed **\$5.8 billion for rural water infrastructure and efficient water management**, including **\$5.2 billion for the Murray-Darling Basin**.

Moree-based nut grower Stahmann Farms is the driving force behind a water-saving plan to return more water to the environment and increase productivity on its farm in northern New South Wales. A \$2.9 million grant, in conjunction with their own water recovery program, has helped the company convert flood irrigation on 283 hectares to underground drip irrigation. The infrastructure upgrade is expected to generate a minimum of 750 megalitres in water savings annually, the equivalent of approximately 300 Olympic-sized swimming pools, while increasing productivity by 30 per cent.

'By investing in efficiency upgrades and converting from flood to drip, irrigation communities are benefiting both economically and environmentally', Managing Director of Stahmann Farms, Matthew Durack said.

As a relatively big employer in the local community with 120 people permanently employed, the project has given Stahmann Farms the confidence to consider expanding their operations using more sustainable technologies. This would enable them to increase production while protecting the natural resource base. Water savings have increased flows that contribute to improved health of environmental assets such as wetlands, floodplains and water-dependent species. Increased flows support native fish breeding and large-scale migratory bird breeding, and contribute to the health of floodplain vegetation (including river red gums) and improve water quality through the export of salt, sediments and nutrients.

7.1.5 Pollinating insects

About a third of food produced in the world comes from crops that benefit from insects (mainly bees) for pollination (Aizen et al. 2009). Around the world insect pollinators, such as the European honey bee, face threats including habitat degradation, the unintended effects of pesticides, climate change, diseases and pests, particularly the varroa mite. At the same time, agricultural demand for pollination services is increasing.

Along with the honey bee industry, we are investing in research to understand the role of crop pollination by both the European honey bee and Australian native insects and to enhance our ability to keep varroa mite out of Australia. This will help secure the pollination of Australia's plant industries on a sustainable basis.

We are working to minimise the effects of insecticides on pollinators. Australian Pesticides and Veterinary Medicines Authority is reviewing the science on pesticides and bee health to determine whether some types of pesticides are causing high levels of unintended harm to insect pollinators. This work aims to ensure future testing of insecticides adequately addresses potential negative health effects of insecticides for insect pollinators.

Plant a bee friendly garden using the information in the *Bee friendly—A planting guide for European honeybees and Australian native pollinators*. For more information visit rirdc.infoservices.com.au/items/12-014.

7.1.6 Animal pests and weeds in Australia

Invasive animal pest and weed species that are established in Australia are a threat to primary producers because they can seriously affect agricultural production. These invasive species can attack or compete with crops or livestock and reduce agricultural yields, including food.

Animal pests and weeds cost Australian agriculture over \$5 billion annually (Gong et al. 2009; Sinden et al. 2004). On average, farmers spend 66 days annually managing weeds, and herbicides make up nearly one-third of costs of managing weeds, pests and land and soil (ABS 2008). Adopting new management practices for animal pests and weeds will benefit farmers, improve the condition of our natural resources (by preventing soil erosion) and assist in food production.

Day-to-day management to reduce the impact of animal pests and weeds is undertaken by state, territory and local governments, farmers, industry and the community. We help manage animal pests and weeds that have a significant impact on Australia by facilitating consistent regulations across jurisdictions, building management knowledge and sharing information.

We will continue to provide national leadership in animal pest and weed management in collaboration with state and territory governments. We will take a strategic role—identifying priorities and implementing actions targeting invasive species likely to have the highest national impact. Prioritisation will be based on the principle that early intervention produces the greatest benefit for agricultural productivity and the environment.

Through the **Caring for our Country program**, we will build partnerships with industry, farmers, others governments and the community. These partnerships will help the exchange of information, including with managers on the ground, about how best to

mitigate the impact of animal pests and weeds. Those who are successful in managing weeds and animal pests can encourage others by sharing technical outcomes and information about best practice management, including the location of pest animals and weeds.

A national surveillance framework for weeds will be developed for land managers and communities to be better informed about the location and control of best management practices of controlling established weeds, including sleeper weeds and emerging problem species. Support will also be provided for national cost-shared eradication programs under existing agreements, such as the National Environmental Biosecurity Response Agreement, Emergency Animal Disease Response Agreement and the Emergency Plant Pest Response Deed. This will ensure a strategic approach to prioritisation across a range of weed and pest responses.

We will continue to coordinate the efforts of farmers, industry, Landcare, farming system and other groups in managing high priority pests or weeds to maximise effectiveness and build the community's capacity to participate. We are also working through the **Biodiversity Fund** to prevent the spread of invasive species to food-producing farmland.

7.1.7 Industry and community participation

Meeting sustainable natural resource outcomes requires collaboration between government, industry, research providers, community, food producers and consumers. We will continue to build these valuable partnerships to combine experience, skills and capacity.

Through **Caring for our Country**, we fund groups to build on their own resources and expertise to encourage farmers and fishers to adopt sustainable and innovative management practices. These groups include farming system groups, Landcare, industry, regional natural resource management organisations, Indigenous land and sea management organisations, and research and development corporations. Recognising the different roles and capacities of these groups, the Australian Government will deliver Caring for our Country through a range of approaches, from small grants to larger partnerships with industry. We will also continue to invest in regional natural resource management organisations.

The Australian Government will continue to support our **Landcare** community by introducing support for training, capacity-building and leadership development and continue to promote Landcare to a broader Australian audience.

We will provide advisory and support services to Landcare and other groups through a network of regionally based facilitators and extension officers. We recognise the value of these services, particularly in developing leadership, improving skills, integrating natural resource management outcomes into farm and local-level planning, promoting the uptake of sustainable and innovative practices and working with schools.

We recognise the vital role industry plays in managing our natural resources. We will form a new committee with industry to provide advice on national priorities for sustainable agriculture across sectors and build stronger partnerships between the government and industry. The Australian Landcare Council will continue to provide advice to government on Landcare and natural resource management.

Along the food chain the private sector is increasing its interest in sustainable natural resource management as a corporate social responsibility. We will work with industry

along the supply chain to promote and support the adoption of sustainable practices in agriculture and fisheries.

Learn more about community projects and how the natural resources in your area can be improved. For more information visit

[youtube.com/user/AGDAFF/videos?query=community+action+grants](https://www.youtube.com/user/AGDAFF/videos?query=community+action+grants).

Landcare

We support sustainable agriculture through Landcare. Over 25 years Landcare has shifted its focus from preserving Australia's topsoil and protecting its native vegetation to global environmental and sustainability issues. Landcare is also involved in tree planting and other actions on the ground designed to improve food production and food security and mitigate the effects of climate change.



Philosophy into action

Central Highlands of Victoria—grant funding helped farmers, the Central Highlands Agribusiness Forum and the National EverGraze Project establish 27 demonstration sites on beef and sheep farms to show farmers the benefits of perennial pastures in reducing soil acidity and adding valuable feed for stock production.

Torres Strait—facilitator George Saveka is working with Islander communities to establish local food gardens, supporting the sustainable growth of food production capacity while improving dietary outcomes and strengthening cultural heritage.

7.2 Sustaining our marine and aquatic environment

As a country with an extensive coastline, fresh fish and seafood are an important part of our identity. While millions of Australians enjoy recreational fishing, most of us rely on commercial fishing and aquaculture for the fish and seafood we consume. Productive and sustainable fisheries depend on the health of our marine ecosystems.

Australia has the world's third largest marine area and we produce many high-value species, such as lobster and abalone, for which there is strong demand in Asian markets. However, because of limited nutrient upwelling and low nutrient run-off from the Australian landmass our surrounding seas are typically nutrient poor and not very productive by international standards.

Worldwide, many wild capture fisheries were overfished during the 20th century. While overfishing also occurred in Australia, it was not as severe as in other parts of the world. Over the last 25 years the Australian Government has worked with the fishing industry and other groups to rebuild fish stocks using a range of measures. These include setting limits on how many fish can be taken and the locations and methods commercial fishers are allowed to use.

Bye-bye bycatch



Photo copyright Australian Fisheries Management Authority

When we go fishing the fish we are aiming for aren't always what ends up on our hook. The same is true for commercial fishers who sometimes catch things they don't intend to—this is called bycatch. Bycatch can include fish species and sometimes other marine animals like turtles, seabirds, sea-lions or sharks.

Finding the right solutions to reduce bycatch can maintain our aquatic ecosystems, protect species, enhance the productivity of our fisheries, and benefit fishers. Over the last 15 years we have been working with the fishing industry to reduce this unintended catch. Successes include:

- Installing escape hatches into nets—fishers in the northern prawn fishery have reduced their catch of turtles by more than 97 per cent and sharks by more than 85 per cent (Tuck, in press).

- Fitting bird scaring lines and putting weights on hooks so they sink faster—tuna fishers have cut the accidental catch of seabirds more than 90 per cent (Tuck, in press).
- Closing areas to fishing around sea lion breeding colonies. Gillnet fishers in south-eastern Australia have not caught a sea lion in the 12 months to March 2013.
- Preventing the use of wire lines—this has reduced the incidental catch of sharks on longlines by about 25 per cent.

While these successes are encouraging, we have to do more. The Australian government is working with commercial fishers, recreational fishers and environmental non-government organisations to review the **Commonwealth Policy on Fisheries Bycatch** to ensure it remains world's best practice. Through this policy we will continue to work to minimise bycatch, and prioritise action on Australia's threatened, endangered and protected species.

More than 90 per cent of fish caught in Australia come from fish stocks assessed as being sustainably fished (Flood et al. 2012). Overfishing has been reduced; from 2004 to 2011 the number of fish stocks not being overfished increased by 600 per cent (Woodhams et al. 2012).

Australia's fisheries management continues to be world leading. In order to ensure that our fisheries remain some of the most sustainable and best managed in the world, the Australian Government recently commissioned a review into the legislation and policy frameworks that have supported Commonwealth fisheries for over 20 years. On 21 March 2013, the Australian Government released this review on and announced that it will be undertaking public consultation to inform an implementation plan for the recommendations of the review.

Through the **Caring for our Country program**, the Australian Government is also helping fishers adopt sustainable and low environmental impact practices. The program provides investment in projects to drive innovation and increased efficiency. This program also contributes to maintaining a healthy and resilient marine environment.

Worldwide, aquaculture is the fastest growing primary industry sector. It now accounts for more than half the world's seafood supply. Australia's clean, clear waters are ideal for aquaculture products, such as salmon, tuna, oysters, prawns, abalone and mussels.

The Australian Government believes significant scope exists to increase our aquaculture production with the development of new sites and investment in innovation. The **National Aquaculture Policy Statement** commits all Australian governments to working with the aquaculture industry to achieve maximum sustainable growth, while also meeting national and international expectations for economic, environmental and social performance.

Aquaculture activities may also affect the condition of natural resources. Through the Caring for our Country program we will work to increase the number of aquaculture farms adopting sustainable and low environmental impact management practices to increase productivity.

7.3 Improving our demonstration of sustainability

Demonstrating that food was produced sustainably is becoming increasingly important domestically and internationally. Consumers want to be confident that their food has been produced sustainably. Consumers are seeking information on how their food was produced and the environmental effects their food choices have so they can make choices based on environmental impact.

Proving our food was produced sustainably will help us access high-value markets as we build our reputation as a reliable exporter of high-quality, clean, green and environmentally friendly agricultural commodities and food products. Comprehensive, timely and reliable information on our food producing industries, the condition of our natural resources and sustainable management practices also assists us to make decisions on natural resource management.

We use information to monitor and forecast the condition of natural resources, to decide where to invest in activities to improve the natural resource base and to understand the impact of those activities. Farmers, fishers and the community also use information to underpin their decisions. For example, farmers use soil information to decide what to grow, which management practices suit their location and how those management practices affect the condition of their soil. The **State of the Environment Report 2011** provides information on the current condition of the Australian environment, as well as risks and drivers of environmental change, including those linked to agricultural production.

As a first step toward long-term reform of Australia's information base, we have established the National Plan for Environmental Information. The plan aims to improve the quality and accessibility of environmental data for decision-making, including on food production.

We will continue to invest in programs and surveys that support the collection, analysis and distribution of information and data on land use, soil, groundcover, weeds, diseases and pests, land management practices and the motivations of resource users.

We will continue to produce the **Fisheries Status Reports** for fisheries managed by the Commonwealth to communicate our sustainability for fisheries. We need to develop ways to clearly identify and communicate the clean, high-quality and environmentally friendly credentials of our agricultural sector. We will work with the industry to do this and develop sustainability indicators for agriculture.

We have developed **Sustainability Indicators for Australia** that aim to help inform assessments of whether national and community wellbeing is maintained or improved over time. The indicators have been developed to monitor key stocks of social and human, nature and economic capital. As the indicators are not designed to measure the sustainability performance of particular industries or sectors, we will ensure a complementary set of indicators are developed for the agricultural sector.

The use of chemicals and their residues in the environment and in produce is an important element for customers' and consumers' perceptions of whether produce is clean and green. We will work with industry to assess and minimise the presence of agvet chemical residues on produce.

Learn about soil condition to assist your land management decisions. For more information visit asris.csiro.au.

SoilMapp



Image courtesy of CSIRO.

Soils underpin food production. Every day farmers make decisions that are shaped by or can affect the condition of their soil—whether it is fertiliser application or what crops to plant. The way farmers carry out their work can also affect soil condition.

In order to make decisions, farmers need information about soil depth, acidity, salinity, soil carbon, soil water holding capacity and other attributes. Farmers need this information to maximise productivity and maintain or improve soil health so they can continue to produce food in the years ahead.

SoilMapp a new iPad app, developed by the Australian Collaborative Land Evaluation Program, the CSIRO and the Grains Research & Development Corporation, offers free, instant access to the best available soil and land information. Farmers, consultants and agribusiness providers can use this information to make decisions about how to better manage their land. SoilMapp lets farmers:

- learn about the likely soil types on their properties
- view maps, photographs, satellite images, tables and graphs of data about nearby soils
- uncover the physical and chemical characteristics of their soil, including acidity, soil carbon, available water storage, salinity and erodibility
- access soil information for use in computer modelling that can forecast crop yields and help with crop management decisions.

The national database that underpins SoilMapp will continue to be updated as new information becomes available, increasing the amount of information accessible to farmers.

Ecosystem services from our agricultural landscapes



Agricultural landscapes provide benefits such as food, habitat for animals, clean water and air. Collectively these benefits are called ecosystem services, and they support the environment, the economy and the community—particularly in regional areas.

How farmers manage their properties significantly affects the quality of ecosystem services provided to the community. For example, around two-thirds of Australia's remaining native vegetation is thought to be on land used for agriculture. This land contributes to conserving and protecting species and ecosystems. Well managed soils help to store carbon, reduce greenhouse gas emissions, improve water quality, aquatic biodiversity, and minimise algal blooms and dust storms.

Our agricultural landscapes must be managed in a way that maintains or improves the level of ecosystem services they provide to ensure the wellbeing of Australian's today and in the future. Caring for our Country, our ongoing natural resource management initiative, helps manage Australia's environment and productive lands sustainably. Through Caring for our Country we help farmers improve management of their soil and biodiversity assets and address key threats to agricultural production, such as weeds and pests.

Real progress

Across Australia, Caring for our Country and related initiatives are making real progress.

The latest results of the Australian Bureau of Statistics Natural Resource Management Survey showed that in 2009-10 (ABS 2011):

- more farmers were aware of the need to manage ground cover to reduce soil loss through wind and water erosion while helping to build soil organic matter (soil carbon)
- the numbers of agricultural businesses protecting native vegetation are growing, with more than half the farmers surveyed reporting that they were protecting these resources for conservation purposes
- between 2007-08 and 2009-10 the number of businesses protecting rivers or creeks increased by 10 per cent; those protecting wetlands increased by about 30 per cent and we protected an additional 2 million hectares of native vegetation (equivalent to more than 1.1 million Melbourne Cricket Grounds).

7.4 Reducing waste

Our Goal For 2025

Australia will have reduced per capita food waste.

It is estimated that 30 to 50 per cent of all food produced on the planet is not eaten. In Australia, an estimated 361 kilograms of food waste is generated per person annually (SEWPaC 2010). Food waste can occur along the supply chain and, in the developed world, most food waste is due to retail and customer behaviour (IMECHE 2012).

Food waste makes up around a third of municipal waste. Food waste significantly adds to the financial and environmental costs of waste management and squanders precious resources such as energy, water and fertiliser. Limiting the increasing wastage of food will assist in ensuring the growing world population can be fed.

Food waste can be reduced by changing consumer behaviour. Edible food is often discarded due to consumers' misperceptions that food is no longer safe after the best before date. The Australian Government will review food safety elements on food labels to maximise the effectiveness of food safety communication (Chapter 5).

Recovering and redistributing excess edible food to disadvantaged sectors of the community is also an effective way to minimise food waste. Through a new grants program for community food initiatives the Australian Government will assist local communities to redistribute food through supporting food rescue services and other initiatives to minimise food waste.

Food can be redirected to reduce waste. Produce that does not reach the retail market because it does not meet commercial appearance and quality standards could be sold at local markets or food stalls. Food that cannot be eaten can be used for animal feed, biofuel or compost. Reducing waste in production, storage and processing through to final consumption is important for continued sustainable production of food. Where waste does occur, it should be diverted from landfill.

We are working with state and territory governments, businesses and the community to reduce food waste across our food supply by implementing the **National Waste Policy: Less Waste, More Resources**. The policy sets Australia's approach to waste management

to 2020. It includes a strategy to divert food and other organic waste from landfill to more productive uses such as compost and soil amendments.

We will continue working with the community to provide information and educate consumers and businesses to reduce and make use of existing food waste. We have also included information about the links between food, nutrition and environmental sustainability in the Australian Dietary Guidelines (2013) — which encourage people to review their dietary patterns in order to improve their health, while encouraging them to reduce environmental impacts.

Work under the national waste policy complements numerous successful state and territory government initiatives to reduce food waste, such as the New South Wales Government's Love Food Hate Waste campaign. The project works in partnership with retailers, food manufacturers and processors, local government authorities and community groups to raise awareness about the environmental and financial effects of food waste and reduce the amount of good food going to landfill. The South Australian, Victorian and Queensland governments also have strategies that aim to reduce waste and optimise recovery and recycling, including setting waste reduction targets.

Plan your meals, store food properly and use leftover food. Compost food waste to reduce the amount of food wasted in your home.

8 Delivering the National Food Plan

Our policy goals to 2025

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>1. The value of Australia's agriculture and food-related exports will have increased by 45 per cent (in real terms), contributing to an increase in our gross domestic product</p> <p>Also supported by Goals 2, 3, 4, 5, 6, 7, 8, 9, 11 and 15</p>	<p>Achieve further liberalisation of global agriculture and food markets, increasing opportunities for Australian exporters</p>	<p>1.1 Pursue progress in World Trade Organization multilateral trade negotiations as the most effective way of achieving broad agricultural trade reform</p> <p>1.2 Negotiate and implement regional and bilateral trade agreements that deliver significant benefits to Australia's agriculture and food sectors</p> <p>1.3 Work in a targeted, effective and persistent manner to reduce barriers to trade through bilateral negotiations</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>1. The value of Australia's agriculture and food-related exports will have increased by 45 per cent (in real terms), contributing to an increase in our gross domestic product</p> <p>Also supported by Goals 2, 3, 4, 5, 6, 7, 8, 9, 11 and 15</p>	<p>Maintain and expand access to existing and new markets</p>	<p>1.4 Work to resolve technical market access negotiations</p> <p>1.5 Assist with developing international standards (see also Pathway 12.6)</p> <p>1.6 Work with trading partners to improve the implementation of measures affecting trade, consistent with World Trade Organization rules</p> <p>1.7 Seek recognition of Australia's food safety management system as meeting the requirements of our trading partners (see also Pathways 11.1, 11.2, 11.3 and 11.7)</p> <p>1.8 Improve coordination of market intelligence to address trade barriers and enable industry to take advantage of trade opportunities</p> <ul style="list-style-type: none"> – Establish dedicated market access liaison officers for specific food industries
<p>2. Australia will have stronger food trade and investment relationships with countries across the region and the capabilities to promote Australian interests</p> <p>Also supported by Goals 1, 4, 6 and 14</p>	<p>Enhance relationships with trading partners, particularly in Asia, to promote Australian interests and assist with resolving trade issues</p>	<p>2.1 Expand resources in Australia's diplomatic network to pursue food-related market access, with a larger footprint across Asia</p> <ul style="list-style-type: none"> – Enhance representation in key and emerging markets by increasing the number of overseas agricultural counsellors

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>2. Australia will have stronger food trade and investment relationships with countries across the region and the capabilities to promote Australian interests</p> <p>Also supported by Goals 1, 4, 6 and 14</p>	<p>Strengthen the engagement of Australian food and related service firms with global and regional supply chains, with an emphasis on Asia</p>	<p>2.2 Support Australian industry to build business-to-business links and enhance business relationships (see also Pathway 6.4)</p> <p>2.3 Work with industry to identify the emerging food needs and preferences of Asia and how Australia is best placed to respond</p> <ul style="list-style-type: none"> - Establish an Asian Food Markets Research Fund to support projects that help Australian businesses meet future Asian market need and preferences - Research Asian market opportunities through the <i>What Asia wants: better understanding future Asian food demand</i> report series <p>2.4 Provide client-focused trade facilitation services for food products, services and technology across a diverse range of markets</p>
<p>3. Australia will have a globally recognised food brand that is synonymous with high-quality, innovative, safe and sustainable food, services and technology</p> <p>Also supported by Goals 5, 11 and 15</p>	<p>Enhance Australia's international reputation as a reliable supplier of high-quality and safe food, particularly in Asia</p>	<p>3.1 Work with Australian businesses to use targeted marketing, promotion and appropriate branding (see also Pathway 15.16)</p> <ul style="list-style-type: none"> - Work with industry to develop and deliver a Brand Australia Global Food Strategy <p>3.2 Promote Australia's world-class food safety management and biosecurity systems (see also Pathways 7.4, 11.1, 11.2 and 11.3)</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs</p> <p>Also supported by Goals 6, 7, 8, 9 and 15</p>	<p>Invest in innovation along the food supply chain</p>	<p>4.1 Maintain and improve a world-leading rural research and development system</p> <p>4.2 Encourage an effective rural extension system, involving the private and public sectors</p> <p>4.3 Encourage innovation by food businesses using economy-wide measures where possible (for example, general research and development tax incentives, the intellectual property system)</p> <p>4.4 Support targeted initiatives, including investment, collaboration, programs and better regulation</p> <p>4.5 Remove impediments to adoption of technology and know-how that are safe for people and the environment (includes biotechnology)</p> <p>4.6 Focus research, development and extension investments on strategic needs, taking into account needs of producers, supply chains and end consumers</p>
<p>4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs</p> <p>Also supported by Goals 6, 7, 8, 9 and 15</p>	<p>Help farmers take advantage of the opportunities of a low-carbon economy while reducing agricultural greenhouse gas emissions</p>	<p>4.7 Create opportunities for farmers in domestic and international carbon markets</p> <p>4.8 Provide farmers and landholders with incentives to reduce greenhouse gas emissions or store carbon through the Carbon Farming Initiative</p> <p>4.9 Ensure government investment in research, trialling and extension elements are targeted at mitigation and adaptation opportunities</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs</p> <p>Also supported by Goals 6, 7, 8, 9 and 15</p>	<p>Increase the adaptability of food and farm businesses and their resilience to changes in the environment and economy, including drought and climate change</p>	<p>4.10 Build the capacity of food businesses and the community to prepare for and adapt to climate change (see also Pathway 4.9)</p> <p>4.11 Support farm families in times of drought and other challenges</p> <p>4.12 Help farmers move away from government-funded crisis assistance toward risk management and preparedness</p> <p>4.13 Ensure that government interventions do not discourage people and farm businesses from adapting</p> <p>4.14 Ensure the development of a national adaptation framework for agriculture that includes consideration of and collaboration with food businesses</p>
<p>4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs</p> <p>Also supported by Goals 6, 7, 8, 9 and 15</p>	<p>Encourage investment in the food industry</p>	<p>4.15 Encourage domestic and foreign investment in the food industry, including with:</p> <ul style="list-style-type: none"> a) appropriate support for investment promotion and attraction initiatives b) increasing transparency of foreign investment in agricultural land

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>4. Australia's agricultural productivity will have increased by 30 per cent, helping farmers grow more food using fewer inputs</p> <p>Also supported by Goals 6, 7, 8, 9 and 15</p>	<p>Support access to business inputs</p>	<p>4.16 Encourage well-regulated and competitive markets for food business inputs</p> <p>4.17 Facilitate access to plant and animal genetic resources consistent with international obligations</p>
<p>5. Innovation in Australia's food manufacturing industry will have increased, building scale and capability through collaborations to make the most of emerging opportunities in the Asian region</p> <p>Also supported by Goals 7, 8 and 9</p>	<p>Invest in innovation along the food supply chain</p>	<p>5.1 Establish the Food Industry Innovation Precinct to help enhance the capability of food businesses through training, improved networking and collaboration (see also Pathways 4.3 to 4.6)</p> <p>5.2 Support food manufacturing innovation and growth through the first phase of the Australian Research Council's \$236 million Industrial Transformation Research Program</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>6. Australia's agriculture and fisheries workforce will have built its skills base, increasing the proportion with post-school qualifications</p> <p>Also supported by Goal 13</p>	<p>Improve pathways for building our skilled and unskilled workforce and help people enter the industry's workforce, supported by national training and workforce programs and the industrial relations system</p>	<p>6.1 Ensure the education and training system is responsive to food industry training and skills development needs</p> <p>6.2 Make it easier for more Australians to join the food industry workforce, including people from Indigenous, youth, aged and mobile groups (see also Pathway 12.1)</p> <p>6.3 Identify possible improvements to migration programs that may help the food industry address labour demands</p> <p>6.4 Build Asia awareness in the food industry through skills and workforce development initiatives (see also Pathway 2.2)</p>
<p>7. Australia's infrastructure and biosecurity systems will support a growing food industry, moving food cost-effectively and efficiently to markets and supporting new export opportunities</p> <p>Also supported by Goals 8 and 9</p>	<p>Invest in public infrastructure</p>	<p>7.1 Build on our evidence base about the food industry and consumer demand to better inform infrastructure planning and other decision-making</p> <ul style="list-style-type: none"> – Commission an analysis of the food industry's future infrastructure needs to 2025 <p>7.2 Ensure the needs of the food supply chain are appropriately factored in to national infrastructure prioritisation, planning, investment and regulation</p> <p>7.3 Encourage private investment and effective public-private partnerships to deliver food-related infrastructure projects for the community</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>7. Australia's infrastructure and biosecurity systems will support a growing food industry, moving food cost-effectively and efficiently to markets and supporting new export opportunities</p> <p>Also supported by Goals 8 and 9</p>	<p>Maintain an efficient and responsive biosecurity system to manage risks from exotic pests and diseases</p>	<p>7.4 Help our food industry avoid higher production costs by supporting our animal and plant health status in a way that minimises regulatory burden. The key to achieving this is our strong and integrated biosecurity system, and over the coming years we aim to:</p> <ul style="list-style-type: none"> – build a more integrated and coordinated system of onshore biosecurity – implement national eradication strategies, on a risk-return basis, for new plant, animal and disease incursions (including as part of Caring for Our Country)
<p>8. Participation by Australian food businesses in the digital economy will have increased, driving productivity gains and innovation and creating connections with global markets</p>	<p>-</p>	<p>8.1 Enable and encourage food businesses and consumers to take up new opportunities from the National Broadband Network</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
9. Australia will be among the top five most efficiently regulated countries in the world, reducing business costs	Improve the ease of doing business through more efficient and nationally consistent regulation of food businesses	9.1 Work with state and territory governments to improve the effectiveness of national regulatory frameworks 9.2 Work to reduce regulatory burdens on business where this delivers a net benefit to the community 9.3 Minimise scope for new regulatory burdens through application of best practice regulation impact assessment 9.4 Continually review the effectiveness of the stock of regulation that affects the food supply chain 9.5 Productivity Commission review of regulation across the food supply chain
9. Australia will be among the top five most efficiently regulated countries in the world, reducing business costs	Foster the competitiveness and efficiency of markets for food and food business inputs	9.6 Promote competition and fair trading along the food supply chain (primarily through strong competition and consumer laws and independent enforcement) 9.7 Encourage food businesses to build relationships and codes of conduct that create a productive and efficient supply chain <ul style="list-style-type: none"> – Build food supply chain relationships 9.8 Support and monitor industry self-regulation efforts to ensure they promote fair trading, and are consistent with competition laws

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>10. Australia will have built on its high level of food security by continuing to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage</p> <p>Also supported by Goals 4, 5, 11, 12, 13 and 16</p>	<p>Our food supply includes local and imported food that meets consumer needs and is adequate for Australians to enjoy a safe and nutritious diet</p>	<p>10.1 Maintain a competitive and productive food industry producing food sustainably</p> <p>10.2 Maintain an open access market policy approach to allow the importation of food</p>
<p>10. Australia will have built on its high level of food security by continuing to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage</p> <p>Also supported by Goals 4, 5, 11, 12, 13 and 16</p>	<p>Continuity in the supply of food in emergency situations</p>	<p>10.3 Work with industry to improve the resilience of the food supply chain under the Critical Infrastructure Resilience Strategy</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>10. Australia will have built on its high level of food security by continuing to improve access to safe and nutritious food for those living in remote communities or struggling with disadvantage</p> <p>Also supported by Goals 4, 5, 11, 12, 13 and 16</p>	<p>Individual and community food insecurity is reduced through programs responding to the needs of the most disadvantaged families and people who live in remote communities</p>	<p>10.4 Maintain a strong economy and improved opportunities for employment among disadvantaged groups</p> <p>10.5 Support socially and financially disadvantaged Australians through income support and programs to improve individual food security</p> <p>10.6 Continue to support programs to help disadvantaged families budget and prioritise spending toward goods and services such as food</p> <p>10.7 Provide support to non-government organisations that assist people experiencing food insecurity through government grants and the taxation system</p> <p>10.8 Implement initiatives under the Aboriginal and Torres Strait Islander Chronic Disease Fund to promote nutrition and healthy, active lifestyles in Indigenous communities and improve and strengthen linkages between Australian Government, state and territory programs</p> <p>10.9 Review the National Strategy for Food Security in Remote Indigenous Communities and implement any changes arising</p> <p>10.10 Monitor food security and consumption to identify at-risk populations, inform targeted program development and enable the evaluation of health impacts of programs</p> <p>10.11 Improve access to healthy and fresh food in remote areas in the Northern Territory through the strengthened community stores licensing and support regime</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>11. Australia will be considered to be in the top three countries in the world for food safety, increasing the reputation of Australia's exports</p> <p>Also supported by Goals 9 and 12</p>	<p>The government will continue to review and improve our systems to manage food safety</p>	<p>11.1 Maintain a risk-based regulatory approach to food safety through a partnership between the Australian Government, state and territory governments and the New Zealand Government</p> <p>11.2 Develop and maintain effective food standards that are based on the best available scientific evidence and are consistent with international standards, as appropriate</p> <p>11.3 Continue to take a proactive approach to managing food safety including:</p> <ul style="list-style-type: none"> (a) targeting of food safety interventions (b) seeking efficiencies in collection and understanding of data, setting of priorities for food safety research and development (c) building collaborative national and international partnerships and linkages to share information, data and best practice <p>11.4 Monitor and investigate foodborne illness and increase our capacity to predict and investigate potential emerging issues</p> <p>11.5 Promote and educate consumers on safe food handling through provision of clear product information, education materials and programs</p> <p>11.6 Participate in the development of risk and evidence-based international food standards to promote internationally consistent management of food safety</p> <p>11.7 Continue to develop and maintain collaborative industry and government partnerships to allow for effective response to food safety emergencies, including the efficient recall of unsafe food from the marketplace</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>12. Australians will have the information they need to help them make decisions about food</p> <p>Also supported by Goals 8 and 13</p>	<p>Information is readily available to support food choices</p>	<p>12.1 Improve the information on food labelling by adopting a framework to guide decision-making</p> <p>12.2 Support industry-initiated self-regulatory and co-regulatory approaches to labelling of food in relation to consumer values issues</p> <p>12.3 Improve consumer and industry understanding of country of origin labelling including:</p> <ul style="list-style-type: none"> (a) consider extending mandatory country of origin labelling to all remaining unpackaged primary food products (b) progress a compliance and enforcement program to determine the level and nature of any misconduct by suppliers (c) assess consumer awareness and responsiveness to country of origin labelling, as part of next Australian Consumer Survey in 2015 <p>12.4 Develop a Ministerial Policy Guideline to guide how both regulatory and non-regulatory measures would apply to a new technology requiring pre-market approval</p> <p>12.5 Implement relevant government agreed actions in response to <i>Labelling logic: review of food labelling law and policy</i></p> <p>12.6 Support industry-led voluntary initiatives that complement food labelling to provide additional consumer-value information</p>
<p>12. Australians will have the information they need to help them make decisions about food</p> <p>Also supported by Goals 8 and 13</p>	<p>More opportunities for participation in local community food initiatives that will influence choices and build social networks</p>	<p>12.7 Continue to assist the community to establish and manage community food initiatives, including through a new grants program</p> <p>12.8 Support community food initiatives through increased coordination and promotion, making information more accessible</p> <ul style="list-style-type: none"> – Fund a community food initiatives program

2025 goals	Five-year goals	Pathways: how we will achieve our goals
13. Australian children will have a better understanding of how food is produced	Resources are available to support teachers to teach children about food and agriculture	13.1 Develop teacher resources and professional learning to support teaching about food and agriculture through the Australian Curriculum <ul style="list-style-type: none"> – Invest in developing resources
14. Australia will have contributed to global food security by helping farmers in developing countries gain access to new agricultural technologies	Continue to be a reliable and effective development partner through collaborative relationships aimed at reducing poverty and improving sustainability	14.1 Provide technical and development assistance to help developing countries use resources more efficiently and improve agricultural productivity 14.2 Share our research and development expertise to help developing countries increase their production of food 14.3 Increase the amount of aid we provide to 0.5 per cent of gross national income by 2017-18, more than doubling it from 2010-11 levels 14.4 Strengthen our international agricultural research partnerships to assist global economic development and food security
14. Australia will have contributed to global food security by helping farmers in developing countries gain access to new agricultural technologies	Achieve further reform of global agriculture and food markets, increasing opportunities for developing countries and enabling food to move where it is needed	14.5 Work through international trade forums to advocate for all countries to adhere to the rules of the global trading system 14.6 Advocate for appropriate global, regional and national economic and trade policies, together with good governance 14.7 Provide trade-related development assistance to support developing countries' participation in global markets

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>14. Australia will have contributed to global food security by helping farmers in developing countries gain access to new agricultural technologies</p>	<p>Continue to provide short-term emergency food assistance to those most in need</p>	<p>14.8 Continue to provide funding to international humanitarian relief organisations to ensure emergency food assistance is available during crises</p>
<p>15. Australia will produce food sustainably and will have adopted innovative practices to improve productive and environmental outcomes</p> <p>Also supported by Goals 4 and 12</p>	<p>Increase the number and area of farming and fishing entities adopting sustainable and innovative management practices</p>	<p>15.1 Through the Caring for our Country program:</p> <ul style="list-style-type: none"> (a) Assist farmers to adopt sustainable and innovative practices (b) Increase the knowledge and capacity of farming, regional, community and other groups involved in natural resource management (c) Work with industry, corporate, institutional, sectoral, market and supply chain based initiatives to promote sustainable production and support adoption of sustainable farm practices <p>15.2 Invest in research on sustainable food production, including developing a cross-sectoral soils research, development and extension strategy</p> <p>15.3 Raise awareness of sustainable food production and the importance of soil through an Advocate for Soil Health</p> <p>15.4 Continue to work with states and territories to implement the National Water Initiative and the National Water Quality Management Strategy</p> <p>15.5 Continue rollout of the \$15 billion-plus Water for the Future initiative reforms, including reforms for on and off-farm water use efficiency</p> <p>15.6 Continue to implement the Murray-Darling Basin Plan and deliver further on-farm irrigation efficiency out to 2024 through agreements with states and territories and consistent with the plan's Sustainable Diversion Limit</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
		<p>adjustment mechanism</p> <p>15.7 Continue to invest in research on pollinating insects and work with stakeholders to implement the Honey Bee Industry and Pollination Continuity Strategy Should Varroa Become Established in Australia</p> <p>15.8 Implement a national surveillance framework for existing weeds and pests, building on existing systems that strengthen community capacity for managing new incursions</p> <p>15.9 Regulate the amount of fish that can be taken and the way in which this occurs in order to support sustainable and productive fisheries and marine environments</p> <p>15.10 Through Caring for our Country:</p> <ul style="list-style-type: none"> (a) Assist fishers to adopt sustainable and low environmental impact practices through investment in extension and projects to drive innovation (b) Invest in activities to further restore and maintain Australia's urban waterways and coastal environments
<p>15. Australia will produce food sustainably and will have adopted innovative practices to improve productive and environmental outcomes</p> <p>Also supported by Goals 4 and 12</p>	<p>Increase the engagement and participation of industry and the community in managing Australia's natural resource base</p>	<p>15.11 Continue to invest in and promote community-based organisations, Landcare, farming systems groups and regional community leaders to address natural resource management issues, build capability, plan and raise awareness</p> <p>15.12 Support a network of facilitators to provide advice and support to Landcare and other groups that deliver natural resource management outcomes. Landcare facilitators will interact with schools to promote agricultural learning and understanding of food</p> <p>15.13 Establish a new sustainable agriculture advisory committee to provide advice to government on national sustainability priorities across industries; support the National Landcare Council to continue to provide advice on Landcare and matters concerning natural resource management</p>

2025 goals	Five-year goals	Pathways: how we will achieve our goals
<p>15. Australia will produce food sustainably and will have adopted innovative practices to improve productive and environmental outcomes</p> <p>Also supported by Goals 4 and 12</p>	<p>Improve our demonstration of sustainability and the understanding of our natural resources</p>	<p>15.14 Implement the National Plan for Environmental Information initiative to improve the quality and accessibility of environmental information</p> <p>15.15 Invest in programs and surveys that support the collection, analysis and distribution of data and information on land use, soil, ground cover, weeds, pest animals, land management practices and the motivations of resource users</p> <p>15.16 Work with the agricultural industry to develop ways to clearly identify and communicate our clean, high-quality and environmentally friendly credentials, including the development of sustainability indicators for agriculture (see also Pathway 3.1)</p> <p>15.17 Work with industry to assess and minimise the presence of agvet chemical residues on produce</p> <p>15.18 Continue to produce <i>Fisheries Status Reports</i> for fisheries managed by the Commonwealth</p>
<p>16. 16 Australia will have reduced per capita food waste</p> <p>Also supported by Goal 10</p>	<p>Australia will have reduced per capita food waste</p>	<p>16.1 Implementing the National Waste Policy: Less Waste, More Resources</p> <p>16.2 Implementing the Community Food Initiatives</p>

Glossary

Abbreviations

Term	Description
ABARES	Australian Bureau of Agricultural Resource Economics and Sciences
ACARA	Australian Curriculum, Assessment and Reporting Authority
ACCC	Australian Competition and Consumer Commission
ACIAR	Australian Centre for International Agricultural Research
ACLUMP	Australian Collaborative Land Use and Management Program
Austrade	Australian Trade Commission
COAG	Council of Australian Governments
CRC	cooperative research centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
GM	genetically modified
GOLD	Growth Opportunities and Leadership Development
NBN	National Broadband Network
NHMRC	National Health and Medical Research Council
NPAPH	National Partnership Agreement on Preventive Health
OECD	Organisation for Economic Co-operation and Development
R&D	research and development
RD&E	research, development and extension
RDAF	Regional Development Australia Fund
RDC	rural research and development corporation
SME	small to medium enterprise
WTO	World Trade Organization

Key definitions

Term	Description
Bilateral agreement	Agreements between two nations or entities.
Biosecurity	Managing risks to Australia's economy, environment and community of pests and diseases entering, emerging, establishing or spreading in Australia.
Business regulation	Rules, measures or interventions that seek to change the behaviour of businesses.
Bycatch	Species that physically interact with fishing vessels and/or fishing gear and which are not usually kept by commercial fishers.
Capital	Any form of wealth employed or capable of being employed in the production of more wealth.
Climate change	Change in the average pattern of weather over a long period of time.
Community garden	Any piece of land gardened by a group of people.
Consumer	Someone who uses products or services.
Developing country	Describes low and middle income countries in which most people have a lower standard of living with access to fewer goods and services than most people in high-income countries.
Digital economy	The global network of economic and social activities that are enabled by platforms such as the internet, mobile and sensor networks.
Drivers	Forces of change, either positive or negative, that affects supply and demand. For example, population growth or limits on natural resources.
Economies of scale	That range of production or output over which the average cost of production falls as the volume of its output increases.
Economies of scope	That range of production or output over which it is cheaper to produce a range of products together than to produce each one of them on its own.
Ecosystem services	Actions or attributes of the environment of benefit to humans, including regulation of the atmosphere, maintenance of soil fertility, food production, regulation of water flows, filtration of water, pest control and waste disposal. It also includes social and cultural services, such as the opportunity for people to experience nature.
Export control	Regulations and processes that ensure an exported product meets the required specifications of the importing and exporting nations.

Term	Description
Export certification	A written assurance from the government of an exporting country to the government of an importing government that an exported commodity meets certain agreed criteria (for example, quality or safety).
Food	Anything used, or represented as being able to be used, for human consumption. This includes ingredients, additives, preparatory substances and chewing gum, as well as anything declared as food under section 6 of the <i>Food Standards Australia New Zealand Act 1991</i> . It may also include live animals and plants. It does not include therapeutic goods as defined in the <i>Therapeutic Goods Act 1989</i> .
Food business	A business, enterprise or activity that involves the growing, capturing, handling or the sale of food.
Food industry	All businesses along the food supply chain including farms, fisheries, food manufacturers, transporters, warehousing, researchers and retailers.
Food literacy	To understand food—how it is produced; how to grow, buy and cook it. To understand how to get information about food and how food choices affect our health and the Australian food system.
Food production	The growing, raising, cultivation, picking, harvesting, collection, processing or catching of food.
Food supply chain	The system that moves food from producer to consumer. It comprises production of food materials and products, processing and manufacturing, transport and distribution, wholesaling, retailing, food services, international trade (exports and imports) and consumption.
Food standards	The mandatory, federally set requirements that determine what a food product must contain to be marketed under a certain name in interstate commerce.
Food security	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.
Food waste	Food losses, or the decrease in edible food mass for human consumption, occurring in the food supply chain. Food losses occur at all stages along the supply chain taking place at production, postharvest, processing, retail, preparation and consumption.
Green paper	A government discussion paper which presents a range of ideas and are developed for the purpose of generating public discussion and comment. They do not commit the government to the views expressed or particular future actions.
Infrastructure	Facilities, services and installations that support society, such as water, power, transport and communication systems.
Innovation	Doing new things and doing existing things in new ways. It involves generating, diffusing and applying knowledge.

Term	Description
International trade	Importing and exporting goods and services between countries.
Investment	Using money or capital to earn income or interest.
Market access	The conditions, tariff and non-tariff measures set by countries for the entry of specific goods or services into their markets.
Middle class	The socioeconomic class between the working class and the upper class, usually including professionals, highly skilled labourers, and lower and middle management.
Multilateral agreement	An agreement between many nations. For World Trade Organization (WTO) agreements, it means an agreement made by all members of the WTO.
Policy	A statement of intent adopted and pursued by a government.
Productivity	A measure of the efficiency of production which compares the amount of inputs used (such as capital invested, wages paid or resources used) with the amount of output produced.
Regulation	A rule or order, as for conduct, prescribed by authority; a governing direction or law.
Safe food	Food that is produced in accordance with recommended safety guidelines for the commodity, to minimise risks such as contamination.
Sustainability	The capacity for development that can be sustained into the future, within the capacity of the natural resource base. This includes encouraging sustainable agricultural and fishing practices which maintain and improve the natural resource base.
Technical market access	Complying with required technical regulations and standards imposed to protect human, animal or plant life or health, the environment or other public policy objectives. They can include testing and certification procedures; licensing; labelling and also quarantine and food safety restrictions.
Trade barriers	Any regulation or policy that restricts international trade.
White paper	A statement of government policy on a particular issue.

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