Chapter 1

Introduction

Conduct of the inquiry

1.1 On 25 June 2008 the Senate referred the following matter to the Senate Select Committee on Agricultural and Related Industries for report by 27 November 2009:

> Food production in Australia and the question of how to produce food that is:
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> (a) affordable to consumers;
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> (b) viable for production by farmers; and
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> (c) of sustainable impact on the environment.

1.2 The committee subsequently sought and received extensions to the reporting date, culminating in a final reporting date of 23 August 2010.

Structure of the report

1.3 The remainder of this chapter canvasses the challenging future global food task in the context of increasing demand and emerging supply constraints. The committee also considers Australia's agricultural production in this context.

1.4 Chapter 2 discusses the availability and use of agricultural land in Australia, including the need to maintain agricultural production in the face of competing uses; changing agricultural land ownership arrangements; and the effect of foreign ownership of Australian agricultural land.

1.5 Chapter 3 examines a specific aspect of agricultural land use: the emergence of agricultural production via managed investment schemes (MIS). The committee specifically discusses the tax treatment of MIS and its effect on the allocation of resources in rural areas, as well as outlining major MIS collapses of recent times and the potentially fragile nature of this structure as a vehicle for agricultural production.

1.6 Chapter 4 considers the relationship between scientific innovation in agriculture and its effects on driving the productivity gains necessary to maintain farmers' viability. The committee outlines agricultural research and development in Australia, concerns over recent declining investment in this area and proposals for reform. Finally, the committee explores the implications of plant gene patenting arrangements on the availability and cost of the base materials necessary for food production.

1.7 Chapter 5 examines a range of supply chain issues and the impact each has on the viability of agricultural production and the affordability of food for consumers. The committee considers evidence regarding the impact of rising prices for fertiliser,

labour and fuel on agricultural production, declining water availability and inefficiencies within transport infrastructure. The committee also considers the role that food waste plays in supply chain inefficiencies. Finally the committee considers food retail issues and how these impact on returns to growers for raw commodities and the final sale price of food products to consumers.

Global food demand

1.8 The demand for food globally is predicted to increase considerably in the coming years as both populations and incomes rise. The United Nations has predicted that the world's population will increase to over 9 billion people by 2050, from the current 6.7 billion.[1] Professor Julian Cribb has noted that:

> ...the world population is going to be around 9.1 or 9.2 billion people by 2050, barring accidents, and food demand is growing at about one per cent per annum on top of that population growth. So there is going to be a requirement for roughly double the amount of food by the mid part of this century.[2]

1.9 The Commonwealth Scientific and Industrial Research Organisation (CSIRO) informed the committee that rapidly increasing global demand will be driven by increasing demand for staples from population growth and high protein foods from rising incomes. CSIRO stated that:

- Demand for cereals is predicted to increase by nearly 50% between 2000 and 2030.
- Consumption of fish, dairy, wheat and meat products all increase as incomes rise. Demand for more animal protein by the burgeoning middle-income classes in India and China has been predicted to increase 85% between 2000 and 2030.
- Food imports are predicted to more than double by 2030 in sub-Saharan Africa.[3]

1.10 Growcom stated that rising incomes in developing nations would have a significant effect on demand:

> Higher incomes in China and India have led to increases in consumption of meat and dairy products rather than staples like rice. These products rely heavily on grains as a feedstock, increasing overall demand. By 2020, the Australian Farm Institute estimates that Asia will be importing an additional 5.2 million tonnes of dairy products, 1.9 million tonnes of beef and 1.1

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1 UN Department of Public Information, *Press release*, 'World population will increase by 2.5 billion by 2050', 13 March 2007, accessed 25 June 2010 at http://www.un.org/News/Press/docs//2007/pop952.doc.htm. The world's current population as referred to above reflects 2007 levels and is expected to have risen to 6.8 billion at 2010.

2 Private capacity, *Committee Hansard*, 12 October 2009, p. 2.

3 *Submission 27*, p. 4.

> million tonnes of chicken. That represents 50% of Australia's current dairy production, 86% of our beef production and 140% of our chicken meat production. Such an expansion would require an increase in feedgrains of 225 million tonnes a year, which combined with bio-fuels, would push world feedgrain demand up to 350-450 million tonnes by 2020.[4]

Food supply

1.11 On the supply side, this increasing demand for food has to be met in the context of considerable capacity constraints and related input cost pressures. These include declining available agricultural land from urban encroachment and alternative fuel needs; reduced water availability from climate change and urban use; likely limits on greenhouse gas emissions to address climate change; and potentially a greater scarcity of crucial inputs such as fertiliser and oil.

1.12 Professor Cribb has taken a pessimistic view about the capacity of the global agricultural system to meet future demand for food. He claimed that doubling output will need to occur when vital agricultural inputs are in decline, nominating water, agricultural land, nutrients, oil, technological advances and suitable growing conditions as likely to be increasingly scarce. He stated:

> City demand is now outrunning irrigation demand worldwide. Groundwater levels are falling in almost every country where water is used to produce food. Five billion people will face water scarcity in 2050.
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> ...
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> ...the global stock of good farmland is declining. Twenty-five per cent of the world's farmland is degraded to some degree or other. That is FAO data. We are losing about one per cent per year. So project that into the future and you will see how much we may have left. Urban land use is set to double. That is not only the footprint of the city itself but also all the land in the catchment that it swallows up for recreation and other activities. Basically, it is the world's best farmland because cities are located in river valleys, by and large.
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> ...
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> With regard to peak nutrients, the world perhaps passed peak phosphorus in 1987. Peak gas, which is the main source for producing nitrogen fertiliser, is expected to occur some time in this decade. So fertiliser prices are likely to go up very sharply. More than half of all food produced and three-quarters probably of all nutrients are currently being wasted.
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> ...
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> The International Energy Agency says that we are heading for peak oil. As you know, half of the world's agricultural industry is entirely dependent on oil to keep the wheels of the tractors turning. Fuel prices are going to go up quite savagely, obviously over the next 20 years or so. If agriculture

4 *Submission 23*, p. 5.

> switches to farm produced biofuels, it will probably involve a penalty of about 10 per cent in food output in order to sustain the actual agricultural activity. If, however, agriculture has to supply the fuel for the trucks that carry the food to the cities, then you can expect roughly 30 per cent of agriculture may well be devoted to producing that fuel.
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> ...
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> There is declining R&D...[Since] the early 1970s, the rate of agricultural research has been declining in every major country in the world and internationally. There has not been a real increase in international agricultural research funding since 1974, which is a very long time, and the world population was half what it is today at that time. All the major countries that have invested so much in agricultural research have been pulling back. Even countries such as China have reduced significantly the amount of agricultural research that they are doing. So farmers worldwide are driving into a large technology pothole...
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> ...
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> ...the climates are becoming much more erratic, and we ourselves appear to be one of the early witnesses to the sorts of changes that are going on in the climate. Yes, it will rain more in some countries, but not always where you want it to. The general picture is for the large grain growing areas of the world to dry out, particularly critical areas such as India, central Asia, China and so on. [5]

1.13 These challenges as they relate to Australian food production are examined further in the remainder of this report.

Australia's agricultural production

1.14 Australia's agricultural sector is an integral part of the Australian economy and a significant exporter, providing food and fibre for tens of millions of people around the world. Agriculture employs over 300,000 people on 134,000 farms utilising around 60 per cent of the Australian land mass. The industry accounts for just 2 per cent of national GDP, though the effect recent droughts have had on economic growth have demonstrated the importance of agriculture to Australia's overall economic performance.[6]

1.15 The Department of Agriculture, Fisheries and Forestry (DAFF) informed the committee that Australian agriculture is export oriented:

> In 2007-08, food exports were valued at $23.4 billion, accounting for approximately 13 per cent of Australia's total merchandise exports. Imports of food and food products in 2007-08 were valued at around $9 billion, nearly 40 per cent of the value exported. The dependence of Australian farming on exports varies between industries. Over the period 2005-06 to

5 *Committee Hansard*, 12 October 2009, pp 2-3.

6 *Submission 93*, pp 4-6.

> 2007-08, around 56 per cent of the commodities produced on farms were exported...[7]

1.16 Consequently, returns for producers are heavily influenced by global price movements:

> For Australian agriculture, changes in world prices and currency movements have an important impact on producer returns. This is because domestic prices for these commodities will generally be relatively closely correlated with those in international markets. This is particularly relevant for commodities of which a large proportion are exported, or which face competition from imports or domestically produced substitutes that are traded globally.[8]

1.17 DAFF noted that Australia's relatively small and slowly growing population, with already high per capita incomes, means that future growth in Australian agriculture will depend on expanding export markets.[9]

1.18 Another notable characteristic of Australian agriculture is the long term downward trend in farmers' terms of trade. That is, the prices of agricultural inputs are rising faster than the prices received for agricultural outputs they produce. The one factor mitigating declining terms of trade has been productivity growth, which has enabled Australian farmers to use their inputs more efficiently to remain competitive and sustain their incomes. DAFF explained that:

> Productivity of Australian farms, measuring the efficiency of using inputs to produce a specific level of outputs, has risen strongly for cropping specialists and the mixed crop-livestock industry - averaging 2.1 per cent and 1.5 per cent a year respectively from 1977-78 to 2006-07. Beef specialists achieved the same average performance level as the mixed crop-livestock industry over the past three decades. Their productivity growth coincided with high output growth and relatively marginal growth in input use. The sheep industry continues to lag behind the broadacre sector in terms of long-term productivity growth. Between 1977-78 and 2006-07, the industry has experienced a decline in both output and input use...[10]

1.19 However, DAFF warns that broadacre productivity has slowed since the turn of the century, after surging in the 1990s. This is partly attributable to droughts in 2002-03 and 2006-07.[11]

1.20 The committee was also informed that primary producers are receiving a declining proportion of final retail prices. DAFF stated that:

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7 *Submission 93*, p. 8.

8 *Submission 93*, p. 8.

9 *Submission 93*, p. 10.

10 *Submission 93*, p. 17.

11 *Submission 93*, pp 17-18.

> With respect to the farm to retail supply chain, the value of raw commodities has tended to represent a declining proportion of the final sale price of food products, despite competition at all levels of the supply chain (Whitehall Associates, 2004). The growing gap between farm-gate and retail prices is mainly a reflection of the rising cost of services (including transport, storage, handling, distribution and retailing) and the incorporation of additional attributes (packaging, presentation and qualities) in the final product in response to consumer demands.[12]

1.21 Likely future global demand and supply drivers provide both opportunities and challenges for Australian producers. The submission from red meat representative organisations indicated that increasing global demand provided opportunities for local industry:

- Global demand for meat is projected to double by 2050, with this growth highly concentrated in developing Asian countries.
- Even after accounting for growth in domestic production and competing supplies of white meats in these countries, there is a significant gap to be filled by imports of red meats.
- Australia is the world's number two red meat exporter, so this represents a major commercial opportunity.
- It also represents a major responsibility to provide a highly nutritious, affordable, secure and environmentally sustainable food source for the people of the developing world.[13]

1.22 However, increasing demand and prices for agricultural commodities will need to overcome the significant supply-side challenges highlighted by Professor Cribb above at paragraph 1.12. The committee notes that many contributors to this inquiry were broadly pessimistic about meeting the global food task within Australia's current agricultural system. For example, Victorian Eco-Innovation Lab's evidence represented a view that our food systems need to be re-designed to meet the needs of producers, consumers and the environment:

> Our challenge is not just to produce more food, increasing productivity in the way that we have been doing—increasing efficiency in existing systems is necessary but not sufficient—we also need to think about what food it is, who gets it and how and about regenerating our resources to produce sustainable food in the long term. Acknowledging these challenges, we have a choice to continue as we are with farmers increasingly being squeezed between a declining resource base and input costs and being unable to pass those costs up through the supply chain or being able to pass those costs up the supply chain and having more expensive food with the corresponding food security challenges and poor nutrition outcomes for a steadily increasing group of people; or we can take on the challenge of

12 *Submission 93*, p. 19.

13 *Submission 29*, p. 4.

> developing new food and farming systems that are less reliant on these resources and that maximise the nutritional value of food produced from the resources that we have, hopefully while sequestering carbon.[14]

1.23 The specific challenges facing food producers in Australia are examined in the remaining sections of this report.

Committee view

1.24 The global community faces an enormous challenge to feed itself by the middle of this century as the demand for food increases significantly, perhaps doubling, while our capacity to produce food is constrained by water scarcity, declining arable land, declining nutrient inputs, declining agricultural research and development and deteriorating climatic conditions in key food growing regions of the world. If the challenge is not met, the consequences for global peace and security could be grave and Australia will not be immune.

1.25 The committee discusses a number of these specific challenges in further detail in the chapters that follow.

1.26 From Australia's perspective, it is imperative that we maintain a productive base capable of meeting the food needs of the domestic population to ensure food security in the event that other countries become unwilling to trade food grown within their borders. Even more important, however, is the need for Australia, as a major food exporter, to contribute to meeting the global food task and thereby prevent the potentially disastrous consequences of major food shortages.

1.27 The committee is therefore of the view that governments around the world, including Australia's, must plan for the food needs of the population into the long term future. Such planning should begin in earnest as of now. The views expressed by the committee in the remainder of this report reflect changes to our current approach to agricultural food production that must occur if Australia is to meet its food production objective of producing food that is affordable and can be produced viably by farmers in an environmentally sustainable way.

14 *Committee Hansard*, 25 March 2009, p. 30.