

4 MEGA-TRENDS AFFECTING THE SECTOR

Several forecasting and foresight initiatives have been undertaken recently to identify large-scale drivers for change, many of which are particularly relevant to the agricultural sector (Table 4.1). These mega-trends are likely to have wide-ranging and pervasive effects on society.

The MAF (2007) study specifically assessed the strategic risks and opportunities arising for New Zealand's agriculture, food and forestry sectors. Possible opportunities canvassed in the report include sustainability branding, emission mitigation technologies and innovative foods.

TABLE 4.1: LARGE-SCALE DRIVERS FOR CHANGE

FUTURE FOCUS (10-15 YEARS) ¹	TOWARDS 2030 (25 YEARS) ²	FOUR FUTURE SCENARIOS FOR NZ (20-50 YEARS) ³
Demographic shifts	Population dynamics Social inequalities Belief systems and multi- ethnicities	Identity and social cohesion: self-image, basis of association, relatedness through shared culture, social capital
Geopolitical power shifts, and international trade and investment	The global economy	Governance: social and economic rules applied, and degrees of regulation
Global warming, climate change and extreme weather	Climate change	
Ecosystem degradation, and water quality and availability	Water	Resource base and capacity of natural systems to cope with human impacts
Energy cost and supply	Energy	
Technological advances	New knowledge	

Sources

1 MAF (2007).

2 Futures Thinking Aotearoa (2006).

3 Taylor et al (2007).

From these studies and associated literature this report identifies five mega-trends that have direct relevance to the sector:

- › changing demographics and wealth;
- › food, image and beliefs;
- › globalisation;
- › climate change;
- › the increased pressure on the natural resource base.

CHANGING GLOBAL DEMOGRAPHICS AND WEALTH

The world is continuing to experience a substantial change in both demographics and wealth. As the changes become more pervasive, we can expect to see changes throughout the meat value chain, both in determining future markets and the resulting impacts on meat processing and on-farm production.

Over the last decade there have been strong regional differences in global population and income growth (Table 4.2). These trends are expected to continue in the future, although there may be some downward revision given the recent global economic downturn¹⁴. Only Asia has both a high share of income and is forecast to experience strong growth. Europe has a near static population.

TABLE 4.2: GLOBAL POPULATION AND INCOME GROWTH TRENDS AND FORECASTS

	POPULATION			INCOME		
	1997–2006 (% CHANGE ¹)	2007–2016 (% CHANGE ¹)	2006 (MILLION)	1997–2006 (% CHANGE ¹)	2007–2016 (% CHANGE ¹)	2006 (% SHARE)
World	1.23	1.08	6 530	2.86	3.05	100.0
Africa	2.20	2.04	923	4.21	4.32	1.8
Latin America and Caribbean	1.40	1.17	564	2.27	3.79	5.9
North America	1.02	0.86	332	2.81	2.62	32.3
Europe	0.29	0.06	527	2.20	2.13	27.6
Asia	1.15	0.98	4 150	3.55	4.02	30.3
Oceania	1.36	1.08	33	3.33	2.72	2.0

Source: OECD/FAO (2008).

Note

¹ Percentage change is per annum. These forecasts were made before the 2008 global financial crisis, and incomes for each are likely to be revised downwards.

These population and income dynamics are the key drivers of global food consumption, particularly for protein. Over this period overall meat consumption in OECD countries is forecast to remain relatively stable (including beef), with sheep meat consumption continuing to decline. In non-OECD countries, per capita meat consumption is expected to increase by almost 13 percent from 24 kilograms to more than 27 kilograms per capita between the base years of 2005–07 and 2017, although poultry accounts for the largest proportion of this consumption growth (OECD/FAO, 2008).

¹⁴ The International Monetary Fund's March 2009 document *The Implications of the Global Financial Crisis for Low-Income Countries* estimates that advanced countries' economies will contract by 2 percent in 2009, while lower-income countries are projected to grow by 3.25 percent (down from the estimated 6.5 percent in 2008).

Food consumption is changing for a number of reasons ... Consumers want quality, freshness, safety and healthiness.



Photo: Meat & Wool New Zealand.

FOOD, IMAGE AND BELIEFS

Food consumption is changing for a number of reasons. Consumers of premium products are demanding a greater number and variety of product attributes before they pay a premium price (Hughes, 2006). Consumers want quality, freshness, safety and healthiness (Fearne and Hughes, 2000).

The set of core attributes includes food safety, disease-free status and minimum animal welfare requirements. In addition, high-end consumer preferences trends include a shift towards local food, whole food and natural food, sustainably produced foods, seasonal produce and organics. Specific demands will change over time and vary between markets; it is likely that some trends in this list may become less important. What is more clear, however, is that wealthy consumers are increasingly demanding food products that help define their image and that connect with their core beliefs. This presents opportunities in terms of specialised and diversified products, but also presents challenges from an increasingly diverse marketplace.

These trends are at the top end of the market. While global growth will likely shift more consumers into this market, for the majority of consumers, price and value for money will remain the most important considerations when it comes to purchasing food.

GLOBALISATION

Globalisation has led to a substantial increase in the flow of internationally traded goods and finance since the 1970s. Despite recent concerns about the impacts and adverse consequences of globalisation¹⁵, increasing competition from a range of global competitors is likely to be a trend that will dominate over the next 10 to 15 years.

There are two main sources of emerging international competitors:

- › **LOW-COST PRODUCERS:** Until mid-2008, increasing global food prices were attracting a range of new competitors (Oram, 2008). While food prices have since decreased, the drop has not been as substantial as for other commodities (International Monetary Fund, 2009). Additionally, as lower-cost countries improve their reputation for safe and secure supply, New Zealand's meat sector will face significant international competition from a greater variety of sources.

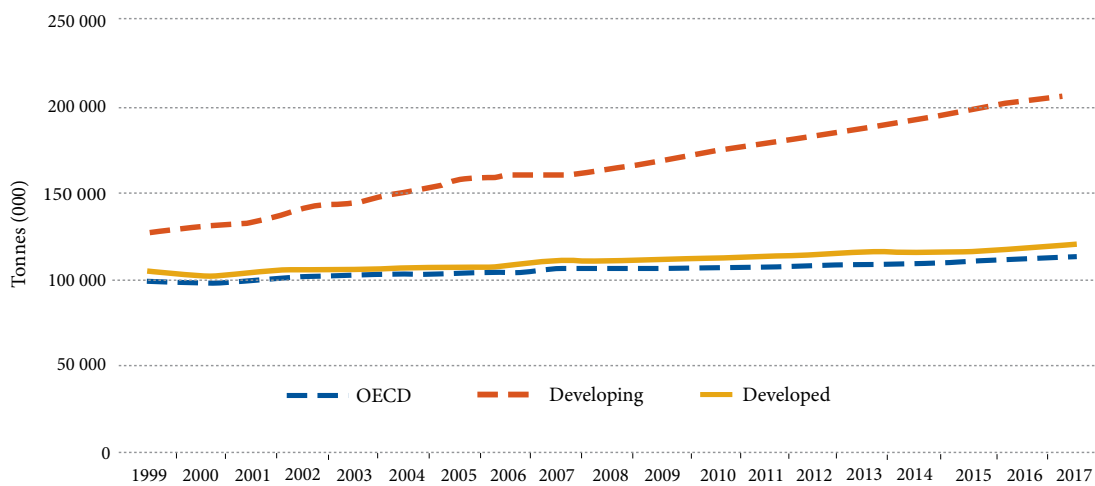
Meat exports out of South America have increased substantially over the last 20 years. In 2007, Brazil was the world's largest exporter of beef (Meat & Wool New Zealand, 2008). Exports of beef from Uruguay have been increasing over the last 10 years, while Argentina's exports have been more erratic due to domestic policy settings that have limited exports. Brazil and Uruguay have invested substantially in improving their meat

¹⁵ The debate on globalisation is usefully summarised in Dani Rodrik's 1997 book *Has Globalization Gone Too Far?* (Institute for International Economics; Washington, DC) and Jagdish Bhagwati's 2004 book *In Defense of Globalization* (Oxford University Press; New York).

industries, for example, in Foot and Mouth Disease vaccination programmes and traceability systems. There is also the potential for increasing competition out of Russia, Eastern Europe and Central Asia. Figure 4.1 shows how the growth in meat production in the developing world is forecast to continue to outstrip that of the developed world over the next 10 years.

- › **LOCAL AND REGIONAL PRODUCERS:** Although production is not increasing as rapidly in the developed world, there is a growing demand in high-end markets for local and regional produce. This stems from concerns about environmental sustainability, a preference for supporting local businesses and concerns over quality and food safety. In some markets, domestic producers have vociferously demanded that retailers support local suppliers (such as Irish and Welsh sheep farmers). Consumer movements have also put pressure on companies to source local products (such as concerns in the US over McDonalds using foreign beef).

FIGURE 4.1: CONTINUED EXPANSION IN WORLD MEAT PRODUCTION



Source: OECD and FAO secretariats.

Internationally, most sheep meat and beef is domestically produced for domestic consumption and governments have strong incentives to protect their domestic producers for both domestic political and wider strategic reasons (such as food security). Future multilateral trade talks may possibly substantially reduce the level of trade barriers facing agricultural products. While this would generally be good for New Zealand, the meat sector would likely face stiffer international competition in markets such as Europe and the

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US, where it currently receives advantageous quota market access compared with some of its competitors.

The next 10 to 15 years are likely to see a continued increase in the internationalisation of meat processing companies. For example, Brazil's JBS has recently expanded into the US and Australia and is now the largest meat processor in the world. Companies such as JBS are able to drive efficiencies through economies of scale, although most of its operations centre around processing feedstock animals. The possibility of substantial overseas investment in New Zealand's meat industry over the next 10 to 15 years cannot be ruled out.

CLIMATE CHANGE

Climate change is now a mainstream part of public debate and public policy discourse nationally and internationally. It is a driver for change in production and is shaping market expectations.

While climate change is a pressing issue for the sector, this report does not directly discuss issues of greenhouse gas mitigation, the pricing of agricultural emissions and how these may impact on the sector. These are clearly important issues, but there is much uncertainty over the international response to agricultural emissions and what impact this may have on New Zealand's sheep and beef sector. We have therefore deliberately excluded many of these issues and concentrate on on-farm adaptation and changing consumer preferences.

Although climate change is a global phenomenon, impacts and likely mitigation measures vary at the regional scale. Recent modelling of climate change impacts in New Zealand suggests a range of regional-level impacts on the sheep meat and beef industry in the coming years (Ecoclimate, 2008). The model indicates less rainfall along



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the east coast and increased rainfall in the west and south. Extreme conditions are predicted to be much more severe and occur at greater frequency than at present. The frequency of extreme events may well become a limiting factor in agricultural production and on the ability of farmers to plan and commit to longer-term supply.

While some adverse events, such as droughts, may potentially be mitigated by increased irrigation, irrigated land is more likely to be used in other sectors that have higher returns per hectare.

This could all equate to further destocking of extensive pastoral land to manage the extra feed availability risk in drier years. If farmers, on average, are able to grow less pasture due to less favourable growing conditions, then they will require a lower stocking rate. An alternative would be the increased use of supplementary feed. If this was feasible on a cost-returns basis it would be a distinct possibility for the beef sector, but it would likely pose significant practical issues for the sheep sector (due to, for example, the difficulties of feeding out to sheep in hill country and the high country).

Save for the possibility of tipping point climate events, the onset of climate change is likely to be gradual over a sustained period of time. Adaptation and productivity growth will be important contributors to the sector's resilience and competitiveness in the face of a climate that is likely to exacerbate the risks associated with pastoral farming.

PRESSURE ON THE NATURAL RESOURCE BASE

New Zealand's pastoral agri-system operates within the constraints of a biophysical environment. Expansion and intensification of farming puts pressure on the natural resource base. These pressures are revealed to the productive system through impacts such as soil degradation and erosion. This may constrain the future productive capacity of the sector, and its ability to substantially expand within New Zealand.

Societal and cultural expectations for improved environmental performance from the agricultural sector are heightening (with respect to, for example, water, nutrient and waste discharges, and greenhouse gas emissions). Society is increasingly expecting the agricultural sector to pay for the negative externalities that it is creating.

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In the next 10 to 15 years, the sheep meat and beef sector will probably need to be able to verify improved environmental performance both to meet market requirements and to satisfy domestic and perhaps international environmental regulations. There are already growing demands throughout the value chain for the credible verification of environmental performance. For instance, some overseas retailers are increasingly demanding information from processors and producers in order to determine products' life-cycle carbon footprints.

Water quality and quantity issues are particularly coming to the fore, with predictions of future international conflicts being precipitated by water shortages. Energy costs and supply are also likely to be an important future issue for the sector, with the potential for small-scale renewable energy generation providing a possible hedge for both farmers and processors.

IMPLICATIONS OF TRENDS ON CURRENT SYSTEM

Food markets are shifting. Longer-term demographic and global economic trends are creating new, wealthier markets. Demand is becoming increasingly fragmented and diverse. The sheep meat and beef sector has a range of new opportunities in both value and volume markets.

The combination of these trends is not only changing demand preferences and market requirements, but also the way the value chain operates and how players along that value chain interact with each other. Some consumers are requiring more specific attributes and these requirements are being communicated back through the value chain to producers, such as through the private standards of major retail chains in the UK.

An example of this is the airtime that the recent "food miles" debate has received. The concept of food miles (measuring a product's environmental credentials based on the amount of miles it has travelled) has been widely discredited. Such a simple concept may still, however, resonate in many consumers' minds. Methods for certifying product attributes are now becoming much more sophisticated and rigorous, such as through the application of life-cycle analysis in order to determine a product's "carbon footprint". Yet, how these are applied is still a developing area.

Certification and verification is more than just measuring greenhouse gases. It is about communicating a story of how a product meets consumers' needs and is consistent with consumer beliefs – whether this be food safety, animal welfare, environmental sustainability or wider social and ethical considerations.

Improving product credentials and being able to effectively communicate them to consumers may be a potential source of ongoing competitive advantage for the sector.

Domestically, our natural resource base is coming under pressure. Societal and cultural expectations are changing with respect to issues such as climate change and water, nutrient and waste discharges. The sector's economic success is likely to increasingly depend on its environmental performance, ensuring that the natural resource base is sustained and consumer demands for environmental assurances are met.

As well as displaying verifiable credentials in areas such as improved environmental performance, the sector faces the realities of adapting to increasing environmental constraints. Constraints will be both physical – in terms of increasingly severe weather events and limitations and costs on access to water and energy – and institutional – by way of tighter environmental regulatory controls and/or consumer-driven standards.

Improving product credentials and being able to effectively communicate them to consumers may be a potential source of ongoing competitive advantage for the sector and a way to stay ahead of international competitors in an increasingly globalised world.

