



HORTICULTURE AND ARABLE MONITORING REPORT

2008



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FOREWORD

Welcome to the *Horticulture and Arable Monitoring Report 2008*. This report provides information on the production and financial status of growers, as well as trends, issues and sector concerns. The report also examines the relationship between financial results and the sustainability, productivity and adaptability of the different horticultural and arable sectors.

These sectors are very important to New Zealand. Horticultural and arable export revenue continues to grow and the domestic market is of significant value. Increasing demand for products produced in an environmentally sound and energy-efficient manner is creating both challenges and opportunities for the sectors.

A range of environmental and management indicators are included in the monitoring programme. This allows us to monitor trends in these indicators over time and helps to improve our understanding of sustainable development and productivity in the horticultural and arable sectors.

For the first time this year, the Ministry of Agriculture and Forestry published early web releases of horticulture and arable model budgets to improve the usefulness of this information for New Zealanders. Each early release highlights key points, as well as model budget and expenditure financial results and forecasts. The feedback has been positive and we intend to continue these early releases in future years.

This is the second year we have presented the horticultural and arable sectors in one major report. The combined report allows the different horticultural and arable sectors to be compared and contrasted, and provides an overall picture of the current and forecast situation. The *Pastoral Monitoring Report 2008* will be published in December, and will cover the dairy, deer, and sheep and beef sectors.

I am proud of the way that the *Horticulture and Arable Monitoring Report 2008* continues to develop and I look forward to future enhancements.



Paul Stocks
Deputy Director-General
MAF Policy

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OVERVIEW

1

The *Horticulture and Arable Monitoring Report 2008* shows that increases in production and/or prices have improved the financial performance of many of the sectors reported on.

Forecast results for the 2008 season¹ in this report are based on grower views collected in May 2008. These views are combined with input from those servicing the sector to create short-term physical and financial forecasts for model enterprises in the kiwifruit, pipfruit, viticulture and arable farming sectors. Model controllers in the Ministry of Agriculture and Forestry (MAF) (see the list in Appendix 1) analysed the implications of the trends highlighted in the models. Vegetables, export fruit crops, maize and apiculture are covered in less detail in the commentary chapters.

Growers contributing to the monitoring programme were largely optimistic when the data was collected, due to improvements in market prices and a favourable movement in the exchange rate against the euro.

The changes in the gross margins achieved in the crops covered in the commentaries in 2007/08 compared with 2006/07 vary greatly. Generally, the fruit, apiculture and maize sectors managed to maintain or improve their financial performance due to increased yields or better prices. Growers of most vegetable crops, with the exception of fresh potatoes, experienced a poorer outcome in 2007/08 compared with the previous year, as the rise in input costs was not matched by improved yields or prices.

Unlike recent years, a shortage in the supply of seasonal labour for harvesting, packing and pruning did not become a major constraint for growers in the 2008 season. Growers acknowledge that changes in seasonal labour policy, particularly the introduction of the Recognised Seasonal Employer (RSE) scheme² in April 2007, are assisting with the supply of seasonal labour. The sectors hope that the higher costs involved in the RSE scheme can be offset by productivity improvements due to reduced staff turnover and higher skill levels.

»» FACTORS AFFECTING FINANCIAL PERFORMANCE IN THE 2008 SEASON

The most significant factors affecting the financial performance of the horticultural and arable sectors in 2008 are exchange rates, crop performance, market demand and costs.

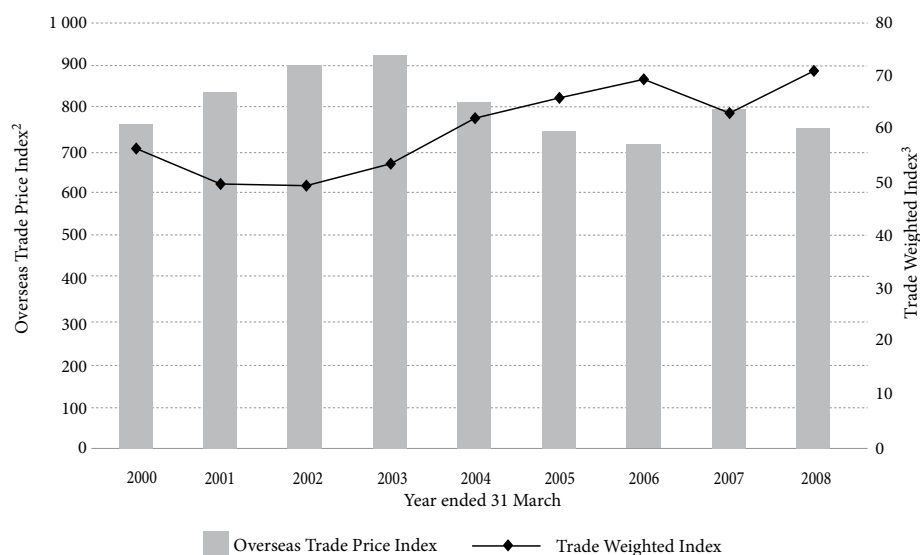
» EXCHANGE RATE EFFECT CONTINUES TO INFLUENCE EXPORT PERFORMANCE

The effect of the exchange rate on grower prices dominates the financial performance of the export-orientated horticultural and arable crops covered in this report. Analysis of trade data for fresh and processed fruit and vegetables shows an inverse relationship between movements in the exchange rate, as reflected in the Trade Weighted Index, and the Overseas Trade Price Index (Figure 1.1). The increase in overall export earnings for horticulture and arable crops in recent years is driven primarily by increases in export volumes, rather than in market returns.

¹ Different horticultural and arable products are harvested at varying times throughout the year. The 2008 season refers to crops harvested mainly in summer and autumn 2008. Different year ends are used in this report, as monitoring reflects as far as possible the year end used by growers in the various sectors. For this reason, this report shows the 2008 season as ending on 31 March 2009 for kiwifruit, 31 December 2008 for pipfruit and 30 June 2008 for viticulture and arable crops.

² The RSE scheme is a New Zealand Government policy introduced in April 2007 to facilitate the temporary entry of overseas workers to plant, maintain, harvest and pack crops in the horticulture and viticulture industries to meet seasonal labour shortages.

»» FIGURE 1.1: TRENDS IN EXCHANGE RATES AND EXPORT EARNINGS
FOR FRESH AND PROCESSED FRUIT AND VEGETABLES¹



Notes

- 1 The overseas trade data analysed is for fresh and processed fruit and vegetables and does not include wine, seeds, flowers and plants.
- 2 The Overseas Trade Price Index is a measure of the change in price level. It is calculated primarily from the overseas trade value and volume data, using surveyed price information in some instances.
- 3 The Trade Weighted Index (TWI) is the average value of the New Zealand dollar in relation to the currencies of our major trading partners. The TWI figures used in each year are from the September quarter of the previous year, as this is the quarter in which a significant proportion of horticultural export earnings are repatriated back to New Zealand.

Source

Statistics New Zealand.

The exchange rate reached record highs in the year ended 31 March 2008. This had an adverse effect on the financial performance of the key export fruit crops of pipfruit and kiwifruit in the 2007 season. The 2008 season has seen a favourable movement in the exchange rate, particularly in the second and third quarters, which is when a significant proportion of horticultural export earnings are repatriated back to New Zealand.

» CROP PERFORMANCE

Spring frosts impacted on fruit crops in Hawkes Bay reducing yields by around 15 percent for the pipfruit model and 29 percent for the viticulture model compared with 2007.

A combination of high yields and increased producing area delivered record production levels in 2008 for avocados, honey and Marlborough winegrapes.

Below-average rainfall in spring and mid-summer across most of the North Island resulted in reduced yields for potatoes and maize, in particular. However, increased prices more than compensated for the loss in production of these crops.

➤ MARKET DEMAND

Concerns about the impact of frost damage early in the season meant that higher contract grape prices were achieved for almost all varieties in the 2008 vintage. Fewer apples were exported from New Zealand and other southern hemisphere countries, which prompted good demand in northern hemisphere markets and improved market prices for Royal Gala and Braeburn in particular. Increased prices due to a reduction in world honey supplies helped New Zealand honey producers capitalise on a record crop in the 2008 season. Reduced overseas supplies also resulted in improved prices for blackcurrants and lemons in 2007/08 compared with the previous year. Lower world grain stocks lifted prices for cereal and maize grain crops in 2007/08.

➤ COSTS

All sectors covered in the models reported that their working expenses for the 2008 season increased due to the rising cost of inputs. The strong New Zealand dollar has provided a buffer against the high prices of imported oil and fertiliser. Increased costs of fuel, electricity and labour are having a significant direct impact on the financial performance of the pipfruit, kiwifruit and viticulture sectors. These cost increases also have an indirect impact through increases in post-harvest and contract machinery charges.

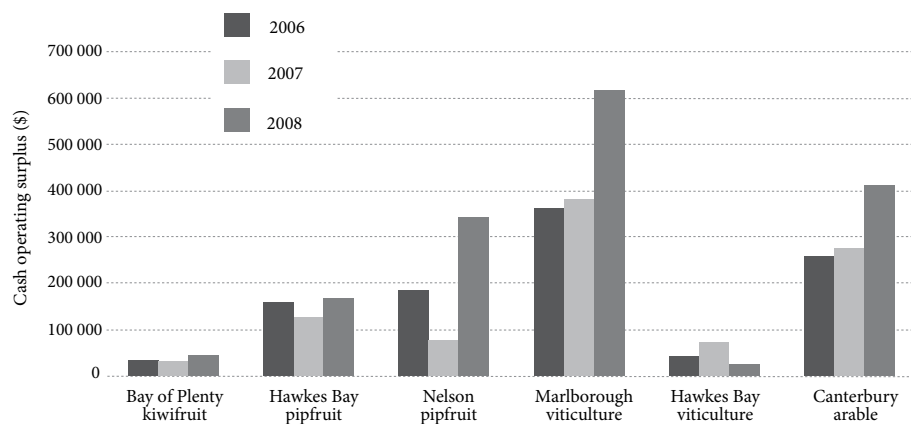
Fertiliser, electricity and fuel costs make up a significant proportion of total operating costs for the arable and vegetable sectors. Higher cereal prices are assisting the arable sector to buffer the rising costs. However, growers of most vegetable crops have not been able to increase their yields or prices enough which has had an adverse effect on their financial outcomes.

➤➤ SECTORAL AND REGIONAL VARIATION IN OUTCOMES

The financial performance of the models covered in this report varies significantly, as illustrated in Figures 1.2 and 1.3. The cash operating surpluses³ illustrated should be viewed in the context of the investment required, which varies between enterprise types and regions. Further details are provided in the individual model budgets.

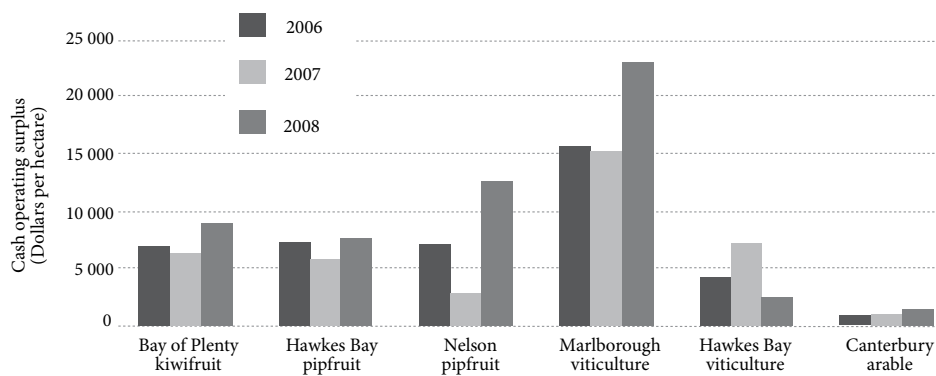
³The cash operating surplus represents the total revenue from the orchard, vineyard or farm business, less working expenses (and adjusted for stock purchases and stock value in the arable model). This surplus must service debt and meet tax, depreciation, development and capital expenditures.

»» FIGURE 1.2: VARIATION IN CASH OPERATING SURPLUS PER BUSINESS UNIT, 2006–2008 SEASONS



Source
MAF Monitoring Reports: 2006 to 2008.

»» FIGURE 1.3: VARIATION IN CASH OPERATING SURPLUS PER HECTARE, 2006–2008 SEASONS



Source
MAF Monitoring Reports: 2006 to 2008.

»» TABLE 1.1: VARIATION IN SURPLUS FOR REINVESTMENT¹ PER BUSINESS UNIT, 2006–2008 SEASONS

MODEL	2006 (\$)	2007 (\$)	2008 (\$)
Bay of Plenty kiwifruit	–17 684	–36 601	–30 067
Hawkes Bay pipfruit	42 092	–5 647	26 832
Nelson pipfruit	17 599	–77 244	181 332
Marlborough viticulture	164 991	186 461	334 690
Hawkes Bay viticulture	–19 391	13 892	–39 534
Canterbury arable	28 200	54 400	81 500

Note

¹ The surplus for reinvestment represents the cash available from the business after meeting living costs. The surplus is available for investment on the orchard, vineyard or farm, or for principal repayments. It is calculated as discretionary cash less off-orchard/vineyard/farm income and drawings. The surplus for reinvestment provides a short-term measure of performance as it does not take account of depreciation or changes in inventory, for example, stock numbers on arable farms.

Source

MAF Monitoring Reports: 2006 to 2008.

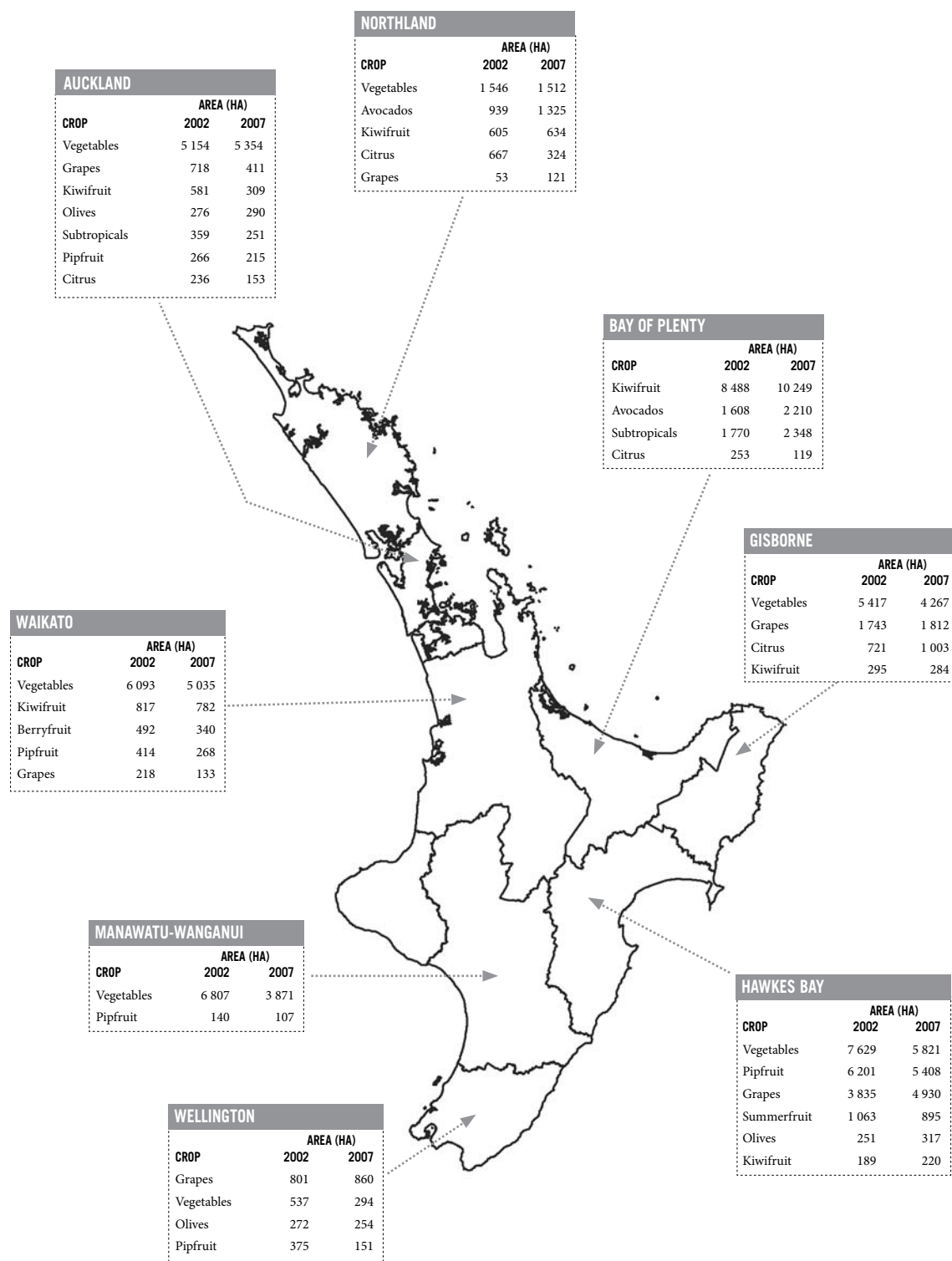
All but one of the modelled business units, project an improved financial outcome for the 2008 season, compared with 2006 and 2007. Despite this, the short-term profitability of some sectors remains seriously challenged, with inadequate funds for reinvestment (Table 1.1). In these circumstances, growers have either cut back on development and capital expenditure or funded it through off-orchard/vineyard/farm income and investments, rather than by increasing their borrowings.

Where good profit levels are being achieved, such as in the Marlborough vineyard and Canterbury arable farm models, growers and farmers are seeking to improve the efficiency of their businesses and reduce overall debt levels.

»» FACING THE FUTURE

The New Zealand horticultural and arable sectors responded to market pressures and opportunities in the past by changing the areas of crops grown (see Figures 1.4 to 1.7). Considerable challenges face the sectors in the 2008 season and the future. However, growers and farmers are generally optimistic. World demand is increasing for food products with assurances of safety and environmental sustainability, and the decline in world cereal grain stocks and the expansion of the dairy sector in New Zealand are providing growers of vegetables and arable crops, in particular, with opportunities to increase income.

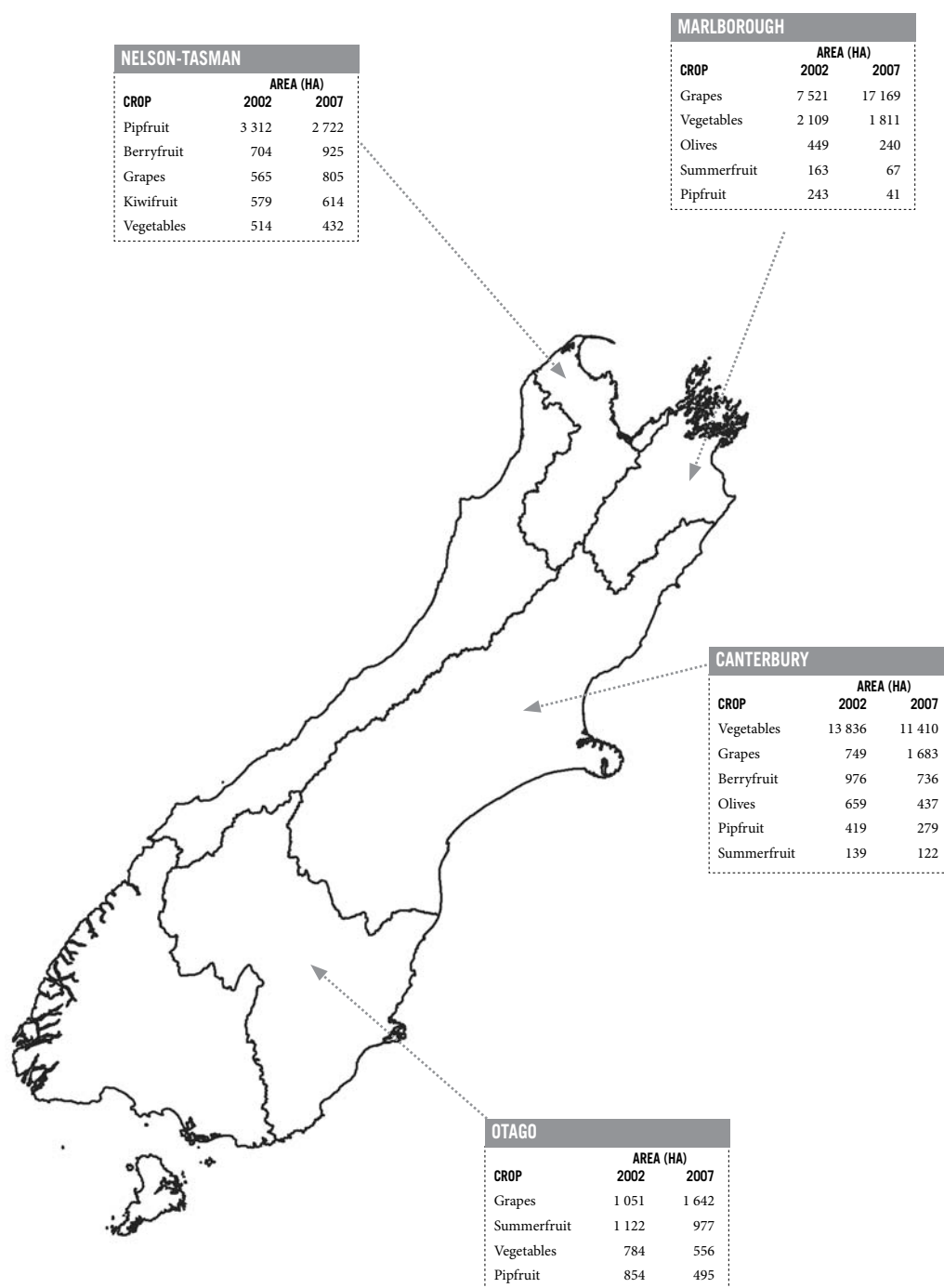
»» FIGURE 1.4: NORTH ISLAND HORTICULTURE STATISTICS, 2002 AND 2007



Sources

Statistics New Zealand (2008). *Agricultural Production Statistics (Final): June 2007*; and (2003) *Agricultural Production Census (Final Results): June 2002*. Statistics NZ; Wellington.

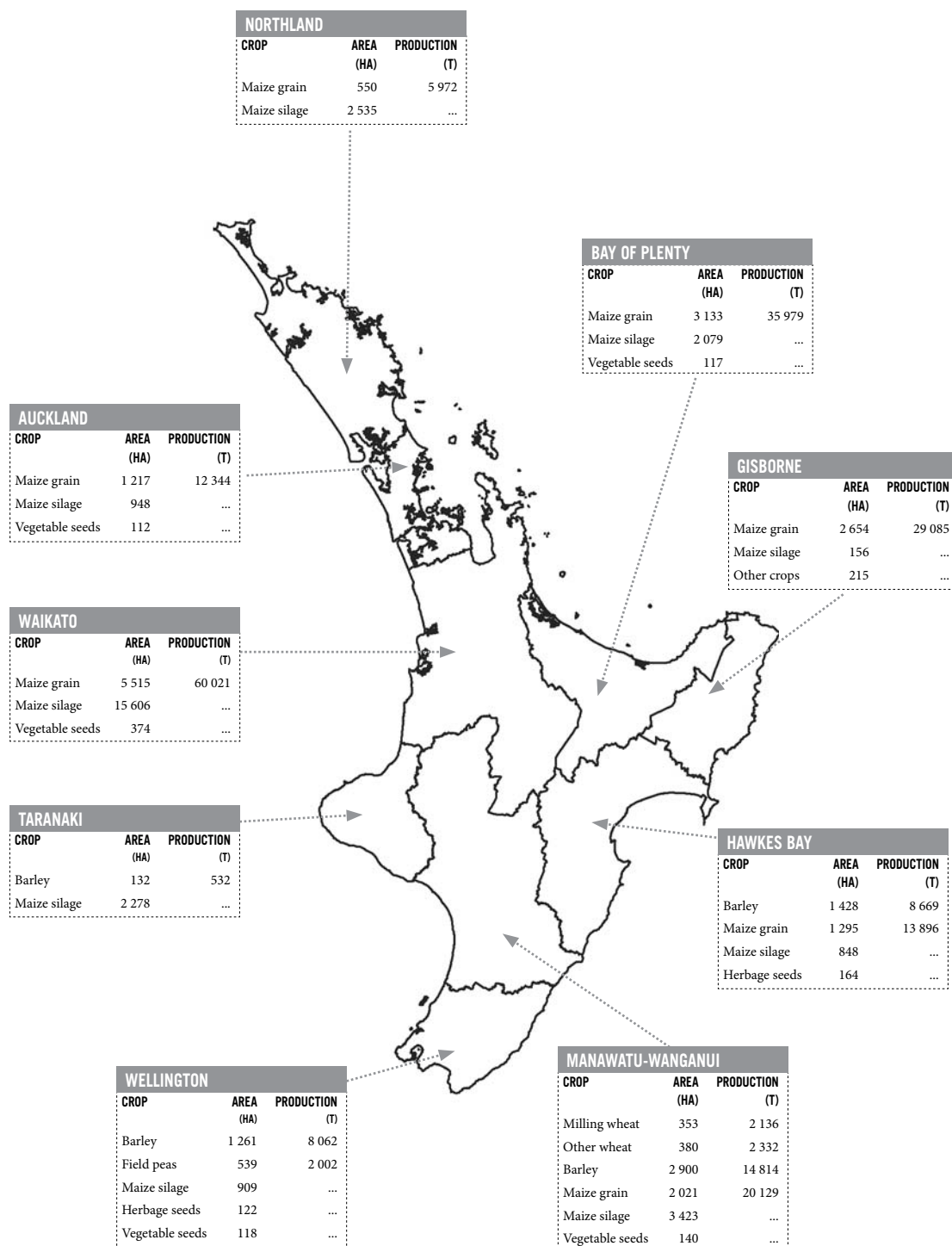
»» FIGURE 1.5: SOUTH ISLAND HORTICULTURE STATISTICS, 2002 AND 2007



Sources

Statistics New Zealand (2008). *Agricultural Production Statistics (Final): June 2007*; and (2003) *Agricultural Production Census (Final Results): June 2002*. Statistics NZ; Wellington.

»» FIGURE 1.6: NORTH ISLAND ARABLE STATISTICS, JUNE 2007



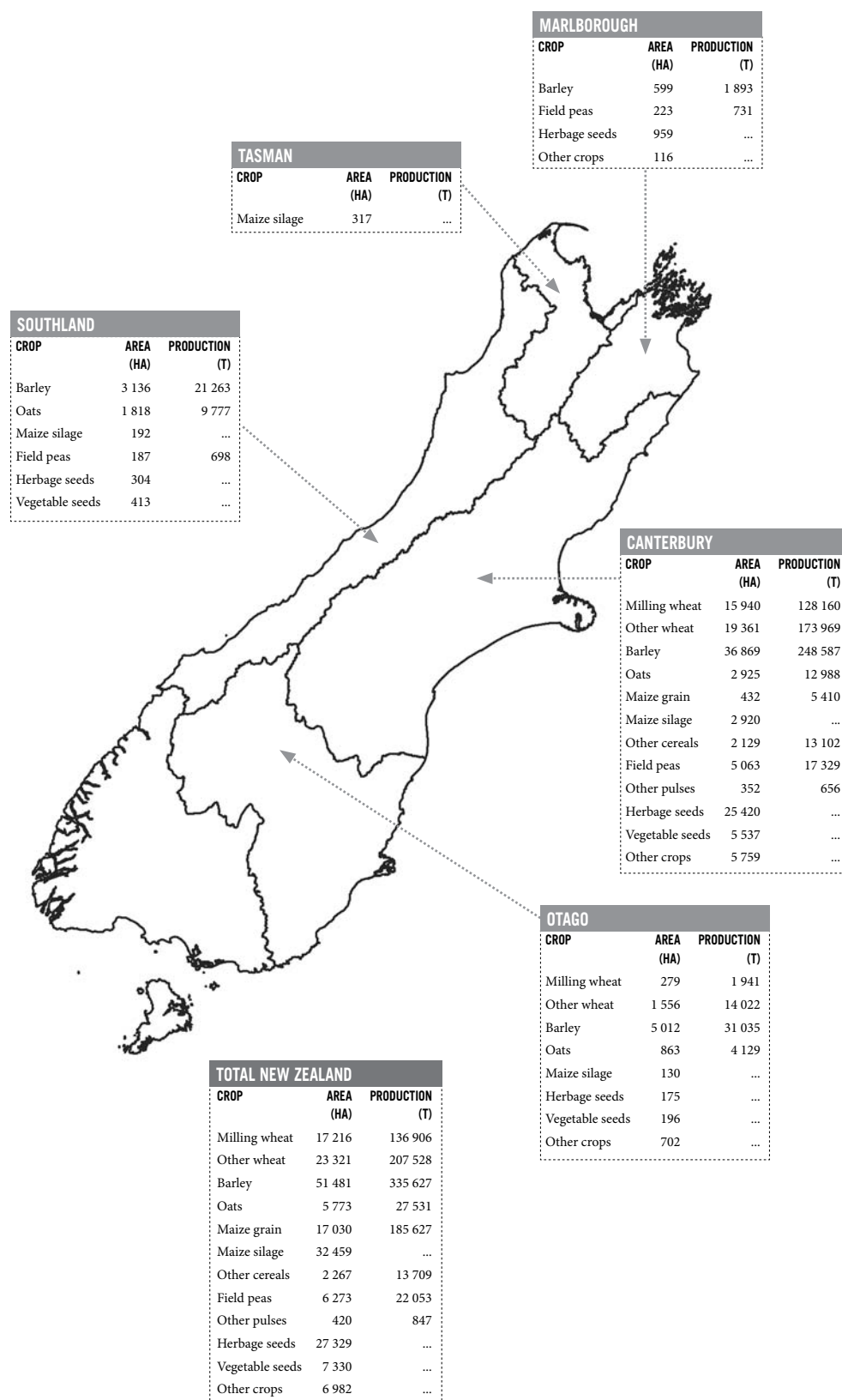
Symbol

... Not applicable.

Source

Statistics New Zealand (2008). *Agricultural Production Statistics (Final): June 2007*. Statistics NZ; Wellington.

»» FIGURE 1.7: SOUTH ISLAND ARABLE STATISTICS, JUNE 2007



Symbol

... Not applicable.

Source

Statistics New Zealand (2008) *Agricultural Production Statistics (Final): June 2007*. Statistics NZ; Wellington.



PART 1

TRENDS AND ISSUES

The New Zealand horticultural and arable sectors are grappling with a range of critical issues as they work to ensure a sustainable future and remain ahead of major competitors. Many issues are common across the sectors and impact on large and small industries alike.

Three issues of high importance are considered in this section:

- › The first issue we consider is the drive to increase energy efficiency in the face of rising fuel and energy prices and increasing market demand for efficiently produced products.
- › Secondly, we assess tactics to manage an appreciating exchange rate.
- › Finally, we examine a range of environmental and management indicators that were collected from grower panels as part of the horticulture and arable monitoring programme. Trends and predominant practices are discussed.

The trends and issues faced by individual horticultural growers and arable farmers are covered in more detail in the individual chapters in Part 2.

INCREASING

ENERGY EFFICIENCY

2

Grower interest in achieving improved energy efficiency has increased dramatically over the past year, as a result of two key drivers: firstly, increasing fuel and energy prices; and secondly, the rise of market demands for assurances of energy efficiency.

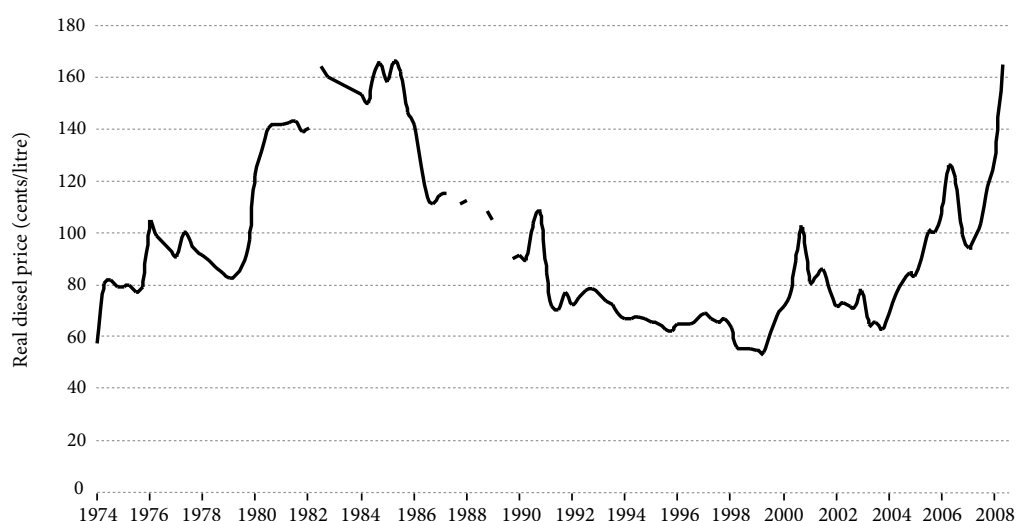
For most of the past two decades, inflation-adjusted diesel prices have trended downwards, reaching a historic low in the late 1990s (Figure 2.1). As a result, there has been little grower incentive to improve energy efficiency. Fuel and electricity expenses have typically been less than 5 percent of cash working expenses for fruit crops, and less than 7 percent for many outdoor vegetable and arable crops. Operators of small to medium-sized businesses focused on more immediate issues, such as obtaining sufficient high-quality staff, machinery breakages and regulation compliance. Energy efficiency was well down the priority list.

However, prices and market demands are now forcing growers to focus on improving energy efficiency:

- › Since the beginning of March 2008, real fuel prices have been higher than at any other time since the oil shocks of the early 1980s.
- › Consumers have rapidly become more conscious of climate change issues and are demanding products that leave the smallest possible greenhouse gas footprint¹.



»» FIGURE 2.1: REAL NEW ZEALAND RETAIL DIESEL PRICES, 1974–2008



Note

Data not available in some quarters.

Source

Ministry of Economic Development.

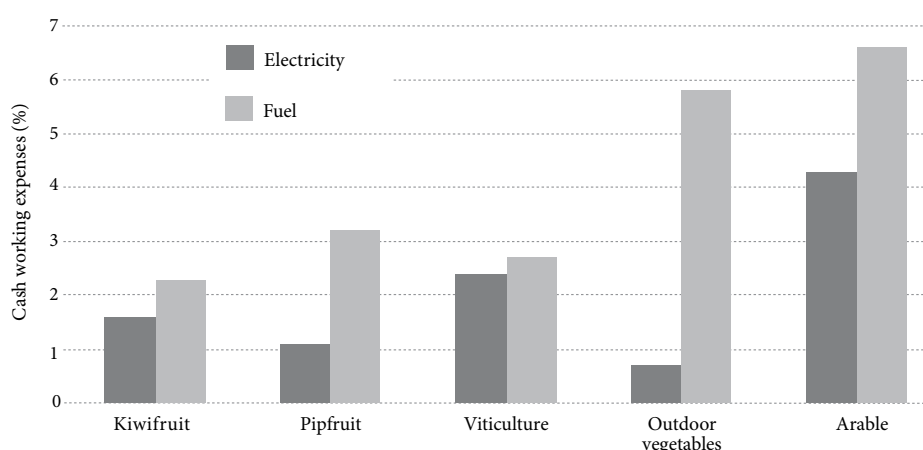
¹ A greenhouse gas (GHG) footprint is a measurement of the embodied GHG emissions from a good or service across its life cycle. Emissions are usually recorded in carbon equivalents.

»» SCOPE FOR REDUCING ENERGY EXPENDITURE

Analysis of the 2006/07 MAF horticultural monitoring financial budgets² found that on-orchard/farm fuel expenditure ranged between 2.3 percent of cash working expenses for kiwifruit and 6.6 percent for arable (Figure 2.2). Each of these sectors carries out different activities, but a common range of measures can be employed to reduce fuel use, the most effective being to reduce the number of equipment passes (for example, mowing or cultivation).

A horticultural enterprise's electricity use is normally dominated by its irrigation system. In 2006/07, the highest electricity-using sectors, as a share of cash working expenses, were arable crops at 4.3 percent and viticulture at 2.4 percent. The other sectors used less than 2.0 percent.

»» FIGURE 2.2: ENERGY EXPENDITURE AS A PERCENTAGE OF CASH WORKING EXPENSES



Source
MAF *Horticulture and Arable Monitoring Report 2007*.

Until recently, the low proportion of total costs represented by fuel and electricity expenditure reduced the motivation for improving energy efficiency. However, the unprecedented rise in petrol prices (up by 24 percent) and diesel prices (up by 60 percent) in the year ended 30 June 2008 is forcing growers and farmers to address this issue. Feedback from survey growers during the 2008 MAF farm monitoring programme indicates that growers are also responding to the rising costs of electricity for irrigation by better monitoring soil moisture levels and improving the application efficiency of their irrigation systems.

² These budgets were published in the *Horticulture and Arable Monitoring Report 2007* except for the budget for outdoor vegetable production in South Auckland. This was developed for MAF internal purposes, using a different process to the other monitoring budgets, and was not based on a survey of growers. The energy use component of the budget was considered sufficiently robust to be used for comparative purposes in the analysis reported here.

The horticulture sector with the highest energy intensity is greenhouse operations. Fuel for heating typically makes up 20 percent of cash working expenses, with a further 2 percent spent on electricity. At these levels, achieving high energy efficiency is essential for survival.

With funding support from the MAF Sustainable Farming Fund (SFF), the greenhouse industry recently undertook an intensive three-year work programme to investigate energy efficiency measures (SFF project 03/158). This research found that, though there is no silver bullet, energy savings are achievable through a detailed and systematic approach, including repairing broken windows, insulating heating pipes and routine boiler maintenance.

Most commercial greenhouse operations now use sophisticated environmental control systems and the research programme³ showed that setting these correctly for climatic and plant conditions achieved the greatest energy savings: 5 percent savings were possible in most greenhouses, with up to 25 to 30 percent where settings were severely sub-optimal. The payback periods for such changes were extremely short, as savings were achieved by changing management practices rather than purchasing additional equipment. The project also determined, based on the energy prices prevailing in January 2006, that thermal screens were less cost-effective in New Zealand than in many overseas countries due to the relative mildness of the New Zealand climate, and that the most advanced climate control systems and heat storage buffers were only justifiable on large greenhouse complexes where economies of scale can be exploited. Higher energy prices will improve the cost-effectiveness of these technologies.

Production of outdoor fruit crops, such as kiwifruit or apples, is less energy-intensive than outdoor vegetable or greenhouse production. However, the fruit is usually in coolstore for some months after it is harvested, which uses energy and increases potential fruit losses. The major heat sources in a coolstore are:

- › field heat and metabolic activity;
- › heat entering through the walls, roof and floor;
- › air exchange through open doors;
- › equipment and people.

Massey University has conducted a number of on-site tests at coolstores to identify opportunities to save energy. The greatest opportunities were from improving door management, minimising the warming of produce between harvest and transfer into the coolstore, and improved insulation. Energy audits of kiwifruit coolstores conducted in 2003 found good energy efficiency practices already in place, with a modest energy saving of 1 percent for measures with a payback period of



³ Nederhoff E; and Houter;B (2007). *Improving energy efficiency in greenhouse vegetable production*. Final Report for project SFF 03/158. Published by Horticulture New Zealand, Wellington.

less than one year, and 7 to 8 percent for measures that have payback periods of one to five years⁴. The Energy Efficiency and Conservation Authority (EECA) is currently working with industry groups to examine the potential for further improvements in energy efficiency post-harvest.

»» MEETING CUSTOMER EXPECTATIONS THROUGH DEVELOPMENT OF SUSTAINABILITY STANDARDS

Many customers, particularly in the United Kingdom (UK) and Europe, are demanding products with sustainability credentials, including attributes related to climate change. The “food miles” campaign attempted to encapsulate a range of environmental and social issues, including climate change contributions and fossil fuel use, in a simple measure that consumers could understand. New Zealand food products exported to the northern hemisphere have occasionally been singled out as having high food miles, whereas they often have lower energy intensity and greenhouse gas emissions than northern hemisphere products, as demonstrated in the Lincoln University food miles report⁵ and other publications⁶.

In response to broad consumer and industry desires for a consistent method, the British Standards Institute is developing the Publicly Available Specification 2050:2008 (PAS 2050) to measure embodied greenhouse gas emissions in products and services. A life-cycle approach is likely to benefit New Zealand more than a food miles approach, although the practicality of understanding and implementing the PAS standard presents enormous obstacles.

In New Zealand, two PAS 2050 analyses are being carried out for wine and kiwifruit in the horticultural sector. A greenhouse tomato and capsicum life-cycle analysis has also been completed recently, building on earlier energy use analysis. Energy use was analysed in the outdoor vegetable and arable sectors in 2004⁷. Research to date suggests that, for horticultural products, meaningful reductions in greenhouse gas emissions can be achieved through improved energy efficiency and reduced product wastage.

»» INFORMATION AND RESEARCH ON ENERGY EFFICIENCY

Information is available to growers wanting to make energy savings. The EECA website contains guidelines for vegetable and greenhouse growers that identify energy efficiency measures and lists the contact details of companies that provide an identified energy-efficiency product or service (<http://www.eecabusiness.govt.nz/eib/industry-guidelines/index.htm>). The website also details assistance available for energy audits and projects to improve the efficiency of energy-intensive businesses. EECA has recently appointed an account manager to assist primary producers.

4 Anon (2007). *Less is more – energy efficiency guidelines for kiwifruit coolstores*. Centre for Post-harvest and Refrigeration Research, Massey University, New Zealand.

5 Saunders C; Barber A; and Taylor G (2006). *Food miles – Comparative energy/emissions performance of New Zealand's agricultural industry*. Report No, 285. Prepared for the Ministry of Foreign Affairs and Trade. Lincoln, Canterbury, Agribusiness and Economic Research Unit, Lincoln University, New Zealand.

6 Smith A; Watkiss P; Tweddle G; McKinnon A; Browne M; Hunt A; Treleven C; Nash C; and Cross S. (2005). *The Validity of Food Miles as an Indicator of Sustainable Development: Final report*. Prepared for DEFRA. Prepared by AEA Technology Environment, Harwell, UK. <https://statistics.defra.gov.uk/esg/reports/foodmiles/final.pdf>

7 Barber A (2004). *Seven case study farms: total energy and carbon indicators for new Zealand arable and outdoor vegetable production*. Available at http://www.agrilink.co.nz/Portals/AgriLink/Files/Arable_Vegetable_Energy_Use_Main_Report.pdf

One of the avenues available to growers for funding research on energy efficiency is MAF's Sustainable Farming Fund (SFF). The SFF has historically funded a range of strategic and practical energy efficiency projects, including:

- › energy minimisation in the arable and outdoor vegetables sector (SFF 00/345);
- › no-tillage and minimum tillage techniques (SFF 00/157 and SFF 01/077);
- › sustainable water management in the grape industry (SFF 00/294, 03/100) and the kiwifruit industry (SFF 03/092).

Summaries of project results can be found at <http://www.maf.govt.nz/sff/about-projects/index.htm>.

On the post-harvest side, a current SFF and New Zealand Winegrowers research project on winery energy efficiency is adapting a best practice benchmarking tool developed in California. This tool establishes a winery's energy-intensity index and leads the user through savings opportunities and payback periods in areas such as refrigeration, pumping, lighting and hot water use.

»» CONCLUSION

Increases in fuel and energy prices combined with market demand for assurances of energy efficiency are likely to become more important in the future. As growers transition to an energy-constrained environment, investment in research, development, technology transfer and capital equipment will be required. In the short term, many growers will focus on low-cost management changes, especially in sectors where profitability is currently low. In the longer term, more profound and system-based changes may be required.

3

MANAGING AN APPRECIATING EXCHANGE RATE

The export of horticultural produce from New Zealand has provided a valuable revenue stream for the country over many years, with export earnings reaching \$2.88 billion (free on board¹) in the year ended 31 March 2008². Export revenue is directly influenced by the exchange rate. The New Zealand dollar (trade weighted against a basket of currencies) has mainly been strengthening since 2001, and in July 2007, hit its highest level since it was floated in 1985. This is the longest period of sustained appreciation, playing a part in eroding grower returns.

Exporters trading in New Zealand currency can employ a number of banking options to directly manage the effect of a strong New Zealand dollar, such as forward exchange contracts, foreign currency options and a collar³. ZESPRI Group Limited (ZESPRI) for example, takes out foreign exchange contracts for the current year and up to two years in advance⁴. The foreign currencies in which ZESPRI primarily deals are euro, Japanese yen and United States dollar.

In the case of pipfruit and wine exports, there are many exporters selling product overseas. Companies vary their management options from no policy through to comprehensive strategies. Small horticulture exporters however, often trade in local currencies as they do not have the turnover to trade in New Zealand dollars.

The horticulture sector can use methods other than banking options to optimise returns and indirectly buffer the effect of a high exchange rate.

»» PAY FREIGHT COSTS IN US DOLLARS

There is a natural hedge in freight, as a rise in the New Zealand dollar erodes export receipts but also lowers the cost of freight as the main shipping lines charge global freight in US dollars. Some commentators would like shipping lines to consider trading in other currencies, such as the euro which is less volatile than the US dollar. Freight is a significant cost to exporters and hence the grower. For example, in the apple industry, freight absorbs about \$8 of the US\$32 to US\$36 received per carton.

»» REDUCE SALES WHERE UNFAVOURABLE EXCHANGE RATE EXISTS

Overseas retailers are aware that the exchange rate can seriously influence an exporter's marketing programme. Growers expect exporters to direct fruit to markets where they will optimise their return.

As a rule, walking away from sales in traditional markets is not desirable. The exporter is keen to ensure continuity of supply through good times and bad.

1 Free on board (FOB) is the value of goods delivered to the port of export and loaded onto a vessel for transportation out of the country of origin.

2 Data provided by Statistics New Zealand.

3 A collar is an investment strategy that uses options to limit the possible range of positive or negative returns on an investment within a specific range. This means that the possible gains and losses will always be within a preset limit. When there is high exchange rate volatility, this is a useful method to limit the downside risk to major transactions.

4 Notes to the ZESPRI Group Ltd Financial Report for the year ended 31 March 2008. ZESPRI; Mount Maunganui. Pages 57–58.



Exporters are often required to negotiate shipping space up to six months or more in advance, making it difficult to modify market destinations a short time before shipping. However, where possible, exporters seek to reduce sales in markets where there is an unfavourable exchange rate.

»» REWISE THE MARKETING PROGRAMME

Marketing programmes are developed over a number of years. Most exporters have core retail customers, while a proportion of their programme has a flexible market destination. Typically, 10 to 20 percent of programmes fell into this category for the exporters surveyed for this report.

Some exporters believe that markets geographically close to New Zealand will become more attractive over time, due to the underlying cost of fuel, greenhouse gas footprinting and economic growth occurring in markets like Malaysia and China. Some exporters are actively developing markets in the Pacific Rim, including China, Vietnam, Thailand and India.

New markets should eventually bring profitable returns, though absorbing significant establishment costs are a challenge initially. Developing new markets has the added benefit of diverting volume away from traditional markets that might otherwise be oversupplied.

»» RAISE MARKET PRICE

Seeking price increases to accommodate the effects of an unfavourable exchange rate is difficult. Some exporters have sought opportunities in cost savings through direct selling to the retailer rather than through middlemen or agents off-shore.

»» NEGOTIATE FIXED PRICE BETWEEN GROWER AND EXPORTER

A small proportion of growers in the pipfruit sector have opted to sell their fruit ex-orchard gate to exporters at a fixed price. The exporter takes on the full risk of the exchange rate, with the price offered to the grower reflecting this risk.

»» MOVE TO HIGHER-VALUE CROPS/VARIETIES

There is little future for horticultural products and varieties whose profitability is governed by the exchange rate. The New Zealand horticultural sector is aware that long-term profitability requires a move to higher-value crops and varieties, where premiums of 30 to 50 percent above a breakeven return can be achieved. Premium apple varieties such as Jazz™ provided growers with an average free alongside ship (FAS) return of \$27.44 in 2007, whereas the average return for Braeburn was \$16.90 (see Nelson pipfruit model Table 6.7). The price premium that can be achieved for Jazz™ and other premium varieties provides a buffer against big swings in the exchange rate.

»» SEEK PRODUCTIVITY AND EFFICIENCY GAINS

Increasing production costs and reduced returns due to unfavourable exchange rates are forcing growers and exporters to seek productivity gains and reduce unit costs where possible, although the strong New Zealand dollar has provided a buffer from high imported oil and fertiliser prices. Strenuous efforts have been made in the kiwifruit sector to improve packout rates and reduce fruit losses for the 2008 crop, with expectations of potential industry savings of up to \$50 million.

Exporters are working to achieve efficiencies in the supply chain. Good examples are exporters negotiating collectively with shipping lines, coolstores and packaging firms.

ENVIRONMENTAL AND MANAGEMENT INDICATORS

4

Since 2007, the horticulture and arable monitoring programme has collected a range of environmental and management indicators from the grower panels. This information is being used to monitor trends and enhance MAF's understanding of sustainable development and productivity in the sector. The results of the 2008 survey are summarised below, with data from 2007 included where available and relevant. Due to the relatively small size of the horticultural and arable panels of growers, the data should be treated as indicative only.

»» IRRIGATION

The results of the irrigation questions asked of the grower panels in 2008 are summarised in Table 4.1. Except in the Bay of Plenty panel, most of the horticultural and arable growers interviewed have irrigation systems, reflecting the need to supplement natural rainfall in order to achieve optimal yields and quality. In the Bay of Plenty, growers on light or shallow soils tend to have irrigation, while it is less common in orchards planted on deep volcanic loams with good water-holding capacity, for example, the Te Puke area.

The percentage of surveyed growers using an irrigation scheduling method or service has increased over the past year, which shows an increasing emphasis on efficient water use in the sector.



»» TABLE 4.1: IRRIGATION SYSTEMS AND SCHEDULING METHODS, 2008¹

MODEL	CANTERBURY ARABLE	BAY OF PLENTY KIWIFRUIT	HAWKES BAY PIPFRUIT	NELSON PIPFRUIT	HAWKES BAY VITICULTURE	MARLBOROUGH VITICULTURE
Properties partially or fully irrigated (%) ²	75	45	100	100	100	100
Predominant type of irrigation system	Travelling rotary boom e.g. Rotorainers	Overhead sprinklers	Mini- sprinklers	Mini- sprinklers and drip	Drip	Drip
Predominant source of water	Bore/ aquifer	Bore/ aquifer	Bore/ aquifer	Bore/ aquifer	Bore/ aquifer	Bore/ aquifer
Irrigated properties using irrigation scheduling methods (%) ³	35	65	95	100	55	70

Notes

1 The data presented in Table 4.1 is derived from the sample of growers monitored and is not necessarily representative of the region as a whole.

2 Percentages are rounded to the nearest 5 percent.

3 Methods include neutron probes, tensiometers and water budgeting. Some growers use visual methods (for example, using a spade).

Almost all of the surveyed pipfruit orchards in Nelson and Hawkes Bay use irrigation scheduling. The viticulture panels used more irrigation scheduling in 2008 – in Marlborough, 65 percent used an irrigation scheduling method in 2007 compared with 70 percent in 2008; in Hawkes Bay, 30 percent used a scheduling method in 2007 and 55 percent in 2008. In the kiwifruit panel, one grower used a scheduling service (water budgeting) out of the four growers who irrigated in 2006/07. In 2007/08, of the eight kiwifruit growers irrigating, five were using scheduling methods or services.

»» FROST CONTROL

Many orchards and vineyards need frost control in the spring (and occasionally in the autumn). Historically, growers in frost-prone areas relied on oil-burning frost pots to prevent frost damage but these have largely been superseded by wind or water-based methods. Wind methods include frost fans or helicopters to force warmer air at high levels down to the plant level. Water-based methods use overhead sprinklers primarily, and rely on the heat released when water freezes to maintain plant temperatures above the damage threshold. Some orchards and vineyards are located in areas where damaging frosts are so infrequent that frost control is not a profitable investment.

Responses by the grower panels to the frost control questions are summarised in Table 4.2.

»» TABLE 4.2: FROST CONTROL SYSTEMS, 2008¹

MODEL	BAY OF PLENTY KIWIFRUIT	HAWKES BAY PIPFRUIT	NELSON PIPFRUIT	HAWKES BAY VITICULTURE	MARLBOROUGH VITICULTURE
Orchards/vineyards with active frost protection systems covering part of or whole property (%) ²	50	75	5	75	75
Main types of frost protection systems	Water	Water	Water	Water and frost fans	Frost fans and helicopters

Notes

1 The data presented in Table 4.2 is derived from the sample of growers monitored and is not necessarily representative of the region as a whole. Growers with no active frost protection systems may be located in areas where frost protection is rarely needed.

2 Percentages are rounded to the nearest 5 percent.

»» SEASONAL LABOUR

The horticultural sector has a high demand for seasonal labour for harvesting, packing and pruning. Seasonal labour policy changes outlined in the *Horticulture and Arable Monitoring Report 2007*, particularly the Recognised Seasonal Employer (RSE) scheme, operated during the 2008 harvest season and provided an improved flow of labour compared with 2007.

»» TABLE 4.3: SEASONAL LABOUR SOURCES, 2008¹

MODEL	BAY OF PLENTY KIWIFRUIT	HAWKES BAY PIPFRUIT	NELSON PIPFRUIT	HAWKES BAY VITICULTURE	MARLBOROUGH VITICULTURE
Season surveyed	2008 harvest	2008 harvest	2008 harvest	2007 winter pruning	2007 winter pruning
Person who sources seasonal labour – most frequent response	Contractor	Grower or grower plus contractor	Grower	Contractor	Contractor or grower plus contractor
Major sources of seasonal labour (where sourced by the grower)	... ²	New Zealanders and Working Holiday Scheme	New Zealanders and Working Holiday Scheme	New Zealanders and Working Holiday Scheme	New Zealanders and Working Holiday Scheme

Notes

1 The data presented in Table 4.3 is derived from the sample of growers monitored and is not necessarily representative of the region as a whole.
2 The extensive use of contractors to employ labour in the kiwifruit industry means growers are not aware of the source of seasonal labour.

Symbol

... Figure not available.

Table 4.3 summarises the results of labour-related questions put to the panels of growers in 2008.

About 10 percent of growers on the pipfruit panels used the Transitional RSE scheme¹ to source workers for the 2008 harvest. In Hawkes Bay, three of the 20 pipfruit growers monitored are RSEs, and in Nelson, three of the 18 growers monitored are RSEs, with a further two in the Nelson sample planning to become RSEs in 2009. Some growers on the pipfruit panels expressed an interest in sourcing RSE workers through their packhouses in 2009. Growers who rely on New Zealanders for seasonal labour noted that it was easier to source workers in 2008 compared with the previous season.

Growers on the viticulture monitoring panels would not have had time to become RSEs prior to the 2007 winter pruning season, as the RSE policy only came into effect on 1 April 2007.

»» ADOPTION OF NEW VARIETIES AND TECHNOLOGIES

The monitored growers were asked about the planting of new varieties and the adoption of a small number of relevant technologies.

» ARABLE SECTOR

Growers on the arable panel were asked about fertiliser management. In 2008, 13 of the 20 monitored arable growers were testing deep soil nitrate (which determines how much nitrate is in the soil at a depth of 80 centimetres) before deciding on their spring fertiliser application, compared with nine of the sample in 2007. In addition, over half the growers in the sample have changed their fertiliser management as a result of nutrient budgeting and measurement, implying

¹ The Transitional RSE scheme assists employers in the horticulture and viticulture industries who are not ready to apply for full RSE status. Under the Transitional RSE scheme, approved growers can employ people who are already in New Zealand on a Transitional RSE work permit for up to four months.

an increasing awareness of the need for careful fertiliser management to improve environmental and economic outcomes.

Growers on the panel are also changing their cultivation practices, with an increase in reduced tillage methods for crop establishment and reduced fuel, labour and machinery use. Table 4.4 shows the proportion of crops established by the three different cultivation systems used by members of the grower panel.

»» TABLE 4.4: CULTIVATION PRACTICES USED TO ESTABLISH CROPS

CULTIVATION PRACTICES	2007	2008
No-till or direct drilling (%)	30	32
Surface cultivation (%)	34	38
Ploughing (%)	36	30

Changing cultivation systems requires the upgrading of plant, especially tractors and equipment such as seed drills. More farmers will probably change cultivation systems as machinery ages and is replaced.

» KIWIFRUIT

Growers were using a range of techniques to increase kiwifruit dry matter levels, with over 75 percent of the sample using cane and/or trunk girdling and over 40 percent using new canopy management techniques, such as pruning to achieve more open canopies, pruning for low vigour, leader pruning and tip squeezing. Two non-organic growers used organic fertilisers and soil amendments for the first time. In the wider industry, reflective mulches are also being used to increase light levels in the canopy.

New planting and training techniques include strip male planting patterns, supporting replacement canes above the horizontal cropping canes (for example, tepee training), extending fruiting canes under male vines and in the gold variety (Hort 16A), alternate row cropping.

» PIPFRUIT

In Hawkes Bay, the monitored growers redeveloped an average of 8 percent of their orchard area in winter 2007, while the monitored growers in Nelson redeveloped 6 percent of their orchard area. Almost all of the area redeveloped in both regions was planted with club varieties². Around 30 percent of the monitored orchard area in Hawkes Bay is in intensive planting systems, but none of the individual orchards are 100 percent intensive. The proportion of the monitored orchard area in intensive planting systems is higher in Nelson at around 60 percent, with eight of the 18 orchards surveyed being 100 percent intensively planted.

» VITICULTURE

In Hawkes Bay, 7 of the 15 growers surveyed had redeveloped part of their vineyard with new varieties in winter 2007, with the area redeveloped ranging from 7.5 to 60 percent of the total vineyard area. Cabernet Sauvignon and other reds were the main varieties removed, replaced predominantly with Sauvignon Blanc and Pinot Gris.

² A club variety is one to which production rights are limited in order to manage supply to the market.

In Marlborough, five of the 18 growers surveyed had redeveloped part of their vineyard in winter 2007, with the area redeveloped ranging from 4 to 20 percent.

Growers in both regions reported that they were adopting practices to reduce labour and/or machinery requirements, for example, using multi-function machinery. Growers in Hawkes Bay reported using sheep for leaf plucking. The use of compost as a mulch under vines is also an increasing practice for nutrition and moisture retention.



PART 2

MODELS AND COMMENTARIES

This section provides information on the production and financial status of growers, as well as commentary on issues that growers are facing on their orchards, vineyards or farms.

For the arable, kiwifruit, pipfruit and viticulture sectors, models are presented that typify an average farm, orchard or vineyard within each main growing region. Each model presents budget figures for the last complete season, and a forecast for the current or upcoming season. Forecasts and budgets are based on grower views collected in May 2008, augmented with input from those servicing the sectors.

KIWIFRUIT

5

»» KEY POINTS

- › In 2007/08, production per hectare on the model orchard rose by 11 percent compared with the previous season, as a result of good seasonal conditions. Production in 2008/09 is expected to rise by a further 4 percent. New management techniques are leading to sustained increases in average yields per hectare.
- › Orchard gate returns per tray fell in 2007/08 as a result of unfavourable exchange rate movements, increased crop volume, smaller fruit size in the green variety, and higher post-harvest and shipping costs. Prices are expected to improve in 2008/09 due to favourable opening market conditions in the European Union (EU), good fruit size and quality, an early start to the season and reduced foreign exchange rate impacts.
- › Orchard working expenses fell by 6 percent in 2007/08 on the model orchard, but are expected to rise by a similar percentage in 2008/09 due to increased wage rates and input prices. Growers cut spending in 2007/08 in response to lower revenue, aided by seasonal factors such as reduced fruit thinning and frost-fighting requirements.
- › The model orchard made a loss before tax in 2007/08, and is expected to make a small taxable profit in 2008/09. These profit levels are well below those achieved in the period from 1999/2000 to 2003/04, and are primarily the result of an exchange rate related fall in orchard gate returns, rather than falling international prices.
- › The model orchard's surplus for reinvestment remains negative in 2007/08 and 2008/09. However, orchard maintenance and development is continuing, albeit at reduced levels, as many growers have off-orchard income and/or investments, and most have high equity levels, which provides a degree of financial resilience.

»» FINANCIAL PERFORMANCE OF THE KIWIFRUIT MODEL ORCHARD IN 2007/08

The kiwifruit model orchard made a small loss before tax of \$2651 in 2007/08, due mainly to lower prices for green kiwifruit. See Tables 5.2 and 5.3 for details of the model orchard's income and expenditure in 2007/08.

STOP PRESS

As this report went to press, ZESPRI released their first official forecast of grower returns for the 2008 kiwifruit crop. Orchard gate return (OGR) is forecast to be higher than growers expected when this report was prepared in June. Using the August official forecast for the 2008/09 forecast year increases total revenue (OGR per tray) by 9 cents/tray for green kiwifruit and 31 cents/tray for gold kiwifruit, compared with the forecasts in Table 5.1. If the model budgets are adjusted using these prices, income levels increase for the 2008/09 forecast year, as follows:

- Orchard net cash income: \$173 100
- Orchard profit before tax: \$11 830
- Orchard surplus for reinvestment: -\$24 960

»» TABLE 5.1: KEY PARAMETERS, FINANCIAL RESULTS AND FORECASTS FOR THE KIWIFRUIT MODEL ORCHARD

YEAR ENDED 31 MARCH	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
Total effective area (ha) ¹	5.0	5.0	5.0	5.0	5.0
ZESPRI™ GREEN					
Production (export trays/ha) ²	7 385	7 750	7 270	8 060	8 400
Total production (export trays)	33 233	34 875	32 715	36 270	37 800
Total revenue (OGR ³ \$/tray)	4.32	3.46	4.09	3.11	3.60
Revenue before 31 March ⁴ (\$/tray)	3.85	3.07	3.62	2.86	3.35
Revenue after 31 March (\$/tray)	0.47	0.39	0.47	0.25	0.25
ZESPRI™ GOLD					
Production (export trays/ha)	9 800	9 300	9 480	10 360	11 000
Total production (export trays)	4 900	4 650	4 740	5 180	5 500
Total revenue (OGR \$/tray)	5.50	5.46	5.18	4.45	4.95
Revenue before 31 March (\$/tray)	4.93	4.92	4.73	4.15	4.65
Revenue after 31 March (\$/tray)	0.57	0.54	0.45	0.30	0.30
Net cash income (\$)	171 028	152 810	162 946	147 975	167 997
Orchard working expenses (\$)	125 340	123 840	123 739	116 626	123 373
Orchard profit before tax (\$)	17 568	–230	9 447	–2 651	6 724
Orchard surplus for reinvestment ⁵ (\$)	–44 512	–40 430	–17 684	–36 601	–30 067

Notes

1 The model orchard is a mature orchard with 4.5 hectares of Hayward (ZESPRI™ GREEN) and 0.5 hectares of Hort 16A (ZESPRI™ GOLD). The orchard is not organic.

2 The kiwifruit crop is harvested from April to June, so the 2007 crop is recorded in the 2007/08 year. A tray contains approximately 3.6 kg of kiwifruit.

3 Orchard gate return.

4 Financial data relates to the year ending 31 March. Kiwifruit income spans two financial years, with the residual payment for each crop occurring in the next financial year.

5 Orchard surplus for reinvestment is the cash available from the orchard business, after meeting living costs, which is available for investment on the orchard or for principal repayments. It is calculated as discretionary cash less off-orchard income and drawings.

» REVENUE DOWN IN 2007/08 DESPITE GOOD YIELDS

Despite higher yields, orchard income fell by 9 percent on the previous season due to the impact of lower prices.

PRICES

Grower prices per tray for green, gold and organic kiwifruit were lower in 2007/08 than in the previous year. Average orchard gate returns per tray for the 2007 crop were:

- › green: \$3.11 per tray (24 percent lower than the previous season);
- › organic green: \$5.32 per tray (9 percent lower);
- › gold: \$4.45 per tray (14 percent lower).

Unfavourable foreign exchange movements accounted for much of the price fall. The increased total crop volume, smaller green fruit size and higher shipping and post-harvest costs also contributed. Post-harvest costs increased by 15 cents per tray (5 percent) on average for green kiwifruit in 2007/08, and by 35 cents per tray (10 percent) for gold kiwifruit.

YIELD AND QUALITY

Yield on the model orchard was 11 percent higher for green kiwifruit and 9 percent higher for gold kiwifruit in 2007/08 than in the previous season. Favourable seasonal conditions contributed to the yield increase, with good winter chilling, a warm spring, regular rainfall, high sunshine hours and a warm and dry autumn.

Fruit sizes were smaller than in 2006/07 for both green and green organic kiwifruit. Some of the early-season gold fruit was damaged during handling, but this was detected in time to re-pack the fruit before shipping to markets.

OTHER INCOME

Dividends on ZESPRI shares were a useful source of cash for growers during the year, contributing \$10 400 to the model orchard (shown as non-fruit cash income in the budget). ZESPRI paid 80 cents per share in cash dividends during the financial year, compared with \$1.20 per share during 2006/07. A reduced commission structure from April 2007 directed more revenue to fruit payments than to dividends.

Income from loyalty premiums declined in 2007/08 to 10 cents per tray for the 2007 crop, down from 26 cents per tray for the 2006 crop. ZESPRI altered the formula used to calculate loyalty premiums for the 2007 crop in favour of higher direct payments for fruit. Most growers receive the loyalty premium, which is given to growers who have a three-year rolling supply contract with ZESPRI.

Off-orchard income was a significant source of revenue for many growers, through off-orchard work and investments outside the kiwifruit industry.

➤ EXPENDITURE HELD STEADY IN 2007/08

The model orchard's working expenses fell by 6 percent in 2007/08. Growers reduced spending where possible in response to lower income levels.

Increased wage rates were offset to some extent because little fruit thinning was required, but total picking costs increased due to the increase in both wage rates and fruit yield. Small increases occurred in many production and overhead costs. These rises were offset by cost reductions due to little requirement for frost protection during spring 2007, and lower expenditure on repairs and maintenance, as orchards were generally in a good state of repair going into the season.

Development and capital purchases amounted to \$8000 on the model orchard during 2007/08, with improvements to shelter and harvest-loading areas or structures, and vehicle purchases.

➤➤➤ FORECAST FINANCIAL PERFORMANCE OF THE KIWIFRUIT MODEL ORCHARD IN 2008/09

The kiwifruit model orchard is forecast to make a small taxable profit of \$6724 in 2008/09. This improvement in financial outcome is forecast because growers expect improved kiwifruit prices and yields compared with 2007/08. See Tables 5.2 and 5.3 for details of the model orchard's forecast income and expenditure in 2008/09.

► HIGHER REVENUE EXPECTED IN 2008/09

Net cash income for the model orchard is forecast to increase by almost 14 percent in 2008/09. Growers anticipate price improvements for both green and gold kiwifruit. A small increase in production per hectare is also expected (the harvest was not complete when this report was compiled).

PRICES

The price outlook for New Zealand's kiwifruit crop in 2008/09 is more favourable than in 2007/08 due to a combination of market and seasonal factors. These include:

- › the low levels of Italian fruit left for sale in the European market at the beginning of New Zealand's selling season;
- › early fruit maturity and shipping, which enabled timely arrival of New Zealand fruit in the market;
- › the moderation of the exchange rate with the euro compared with the levels in 2007/08;
- › good fruit size and quality.

An orchard gate price increase of 50 cents per tray has been used in the forecast model budget for 2008/09, based on grower expectations in early June 2008. ZESPRI make their first official forecast of grower return for the 2008 crop in August. See the Stop Press box on page 27 for more information.

YIELD AND QUALITY

Favourable weather during the growing season for the 2008 crop supports the forecast yield increases for both green and gold kiwifruit. Details of climatic conditions are summarised in Appendix 3. The model orchard's yield is forecast to increase by 4 percent in 2008/09 for green kiwifruit and 6 percent for gold kiwifruit.

Yields in 2007/08 and those forecast for 2008/09 are at record levels for the model orchard and the industry. Growers are more confident they can continuously produce high yields of both green and gold kiwifruit by careful vine management and techniques such as girdling.

Growers and suppliers worked together to review fruit handling practices prior to the 2008 harvest with the aim of improving overall fruit quality and achieving higher packout rates. These measures appear to have succeeded, as early-season quality failures were much lower in 2008/09 than in the past.

► EXPENDITURE INCREASES

Orchard working expenses are forecast to increase by 6 percent for the model orchard in 2008/09 due to a rise in the cost of wages and other inputs, such as fertiliser.



A drop in expenditure on development and capital items is forecast. Interest costs are expected to increase due to higher interest rates and more short-term borrowing due to the poor financial result in 2007/08.

»» IMPLICATIONS AND ANALYSIS

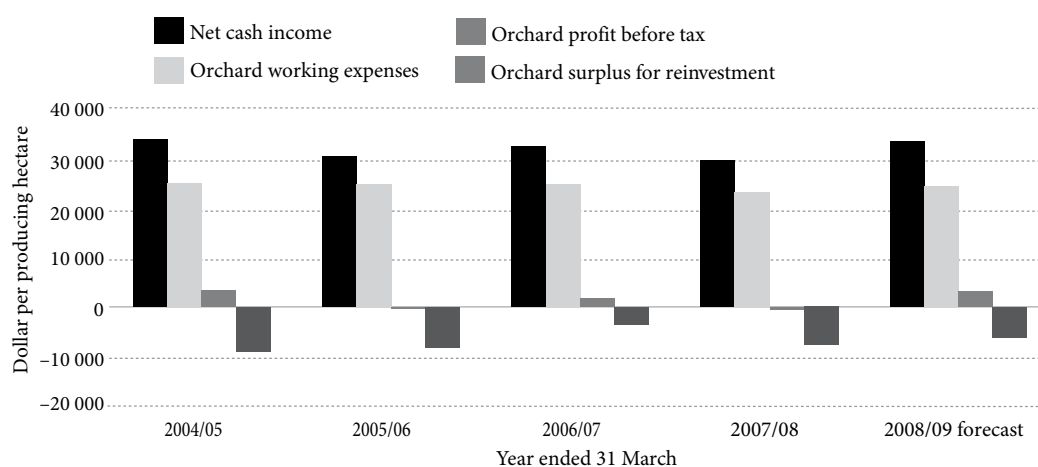
» PROFITABILITY TRENDS

The model orchard continues to generate low levels of profit before tax, despite the improved outlook for 2008/09 (Figure 5.1). These profit levels are well below those achieved in the period from 1999/2000 to 2003/04, and are primarily the result of an exchange rate related fall in orchard gate returns, rather than falling international prices. Despite four years of low profitability, the sector has not been subject to widespread vine removals, with the national kiwifruit producing area increasing by almost 2 percent in 2007/08, continuing the upward trend begun in 1999/2000.

The stability of the industry in the face of an extended period of low profits reflects growers' long-term confidence in the kiwifruit sector. In addition, many kiwifruit growers have high equity levels and some have significant off-orchard assets, which increases their financial resilience. These growers have been able to increase seasonal borrowings as required, and many are borrowing on an interest-only basis.

Grower expenditure on capital purchases has generally fallen to levels well below the usual budget figure of 15 percent of the value of plant and equipment, as reflected in the model budget for 2007/08. These low levels of expenditure are possible in the short-term due to the good standard of repair on many orchards.

»» FIGURE 5.1: KIWIFRUIT MODEL PROFITABILITY TRENDS



Source
MAF Monitoring Reports; 2005 to 2008.

Grower drawings have not declined dramatically over the period of low profitability, as growers have maintained their standard of living using off-orchard income and borrowings, if necessary. Reflecting this view, the model orchard's drawings in 2007/08 were 7 percent higher than in 2006/07.

► TRENDS IN COSTS

Orchard working expenses on the model orchard increased steadily between 1994/95 and 2004/05, and then levelled off as growers economised where possible, due to the fall in profitability (Figure 5.2).

The most important cost on mature kiwifruit orchards is labour. Labour accounted for 52 percent of orchard working expenses on the model orchard in 2007/08. Labour costs as a proportion of orchard working expenses increased from 43 to 54 percent between 1994/95 and 2003/04, and then held steady between 2004/05 and 2007/08, which may in part be related to the rise and fall in orchard profitability over the same period (Figure 5.2).

However, the relationship between profitability and labour expenditure is not simple. Many growers undertook off-orchard work during the early 1990s when kiwifruit was less profitable and employed contract gangs to carry out orchard operations, thus increasing their labour expenditure. Since then, many growers have not resumed the tasks they passed on to contract gangs. In addition, during the more profitable years of the late 1990s, growers converted their orchard's support structures from T-bars to pergolas, which increased labour requirements per hectare, including higher picking costs due to increased yields.

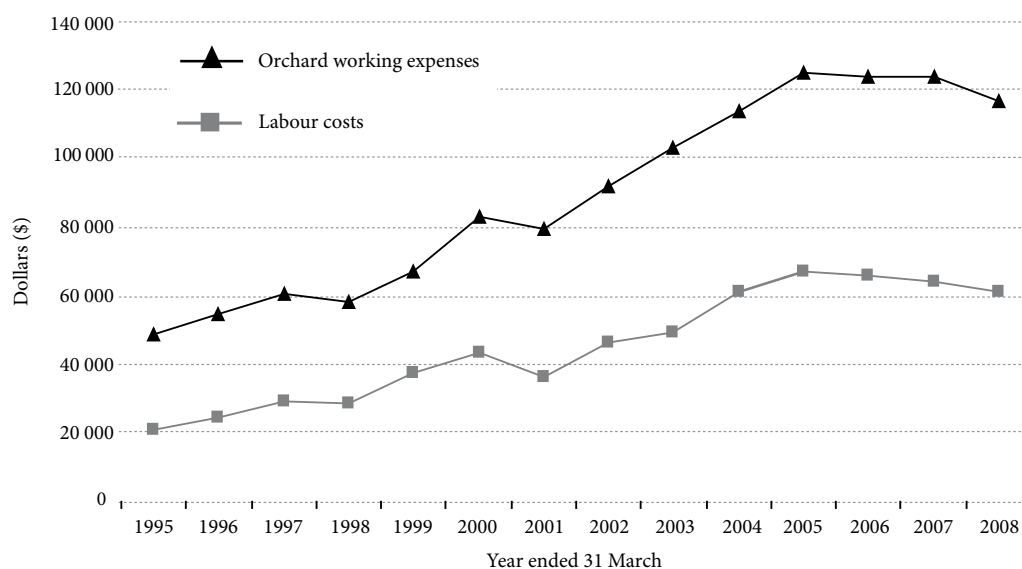
The increasing proportion of the kiwifruit area planted in gold kiwifruit has also increased labour requirements, particularly harvesting costs, due to the careful handling required for this variety. The increasing importance of fruit taste over the past five years has required increased labour input for activities such as girdling, although many growers are using trunk girdling instead of cane girdling, as it is less time consuming. Increases in minimum wage rates, since 2003 in particular, have also contributed.

»» INDUSTRY ISSUES AND DEVELOPMENTS

► GROWER MORALE

The fall in returns for the 2007 crop lowered growers' morale in 2007/08. Growers mainly attribute the fall to the high value of the New Zealand dollar, and they do not expect that the dollar will depreciate significantly in the short or medium term. Growers are reacting positively to ZESPRI's announcements of likely price increases in 2008/09.

»» FIGURE 5.2: TRENDS IN LABOUR COSTS AND ORCHARD WORKING EXPENSES¹



Note

1 The costs are expressed in nominal terms.

Source

MAF Monitoring Reports; 1995 to 2008.

Growers have increasing confidence they can produce sustained yields of high-quality fruit but consider that they need higher prices than those received for the 2007 crop, particularly for green kiwifruit, to sustain orchard viability. Growers are not linking the fall in prices to increased volumes of kiwifruit produced, and are confident that ZESPRI can market the higher volume as long as fruit taste, size and keeping quality are good.

Growers appear to have considerable confidence in kiwifruit growing as a viable business in the long term. In the panel of growers surveyed for MAF's kiwifruit monitoring, some have removed small areas of alternative crops such as avocados over the past three years in order to focus completely on kiwifruit, and 40 percent of the panel currently have new plantings of kiwifruit.

» BUSINESS VIABILITY PLANS

Kiwifruit growers use a range of approaches to support their businesses through times of low profitability. These include off-orchard income, innovative management techniques and new varieties, and support for industry efforts to remove costs from the supply chain, as detailed below. Few orchardists plan to sell their orchards, as sale values have eased over the past year.

OFF-ORCHARD INCOME

Many kiwifruit orchardists have off-orchard income from employment or investments. Some of the investment is in the kiwifruit industry. While growers with off-orchard employment are remaining in employment, there is little indication that growers intend to actively seek additional permanent off-orchard work in the short term to further supplement revenue from their kiwifruit orchards.



INNOVATION

Growers of both the green and gold varieties of kiwifruit are implementing a range of innovations to improve productivity, reduce variation in yields and improve fruit taste and quality. Activities include trunk and cane girdling, installing shelter made of artificial cloth, training next season's fruiting wood above the fruit-bearing canopy, altering pruning methods, spreading reflective cloth underneath the vines and altering structures. Some conversions of vine supports to the more productive pergola structure have been funded by a packhouse business, to be repaid from increases in future production. Many of the innovations being used have a relatively swift payback. Some growers are fine-tuning high labour input activities like pruning, to reduce variation around production targets.

Research into sustained high production and fruit quality is also occurring. ZESPRI set up a focus orchard network in 2007 with co-funding from MAF's Sustainable Farming Fund to investigate the impact of the implementation of management practices and technologies on orchard performance.

ADOPTION OF GOLD KIWIFRUIT AND OTHER NEW VARIETIES

ZESPRI owns the Plant Variety Rights (PVR) for Hort16A, marketed as ZESPRI™ GOLD, and offered a second tranche of new licences to grow gold kiwifruit in New Zealand during 2007. Demand for new licences exceeded supply. Tenders for most of the 250 hectares on offer were accepted, with the tenders accepted paying a median of \$24 000 per hectare including GST. A further tranche of new licences will be offered for tender during 2008, taking the total offered in the three-year tendering process to approximately 600 hectares.

The demand for new gold licences shows the confidence growers have in the variety. This is due to high yields and prices, ZESPRI's ownership of the PVR and trademark, and the understanding of successful production management for the variety.

Development of unique, commercially protected, new varieties is an industry strategy for increasing future returns. Fruiting varieties, rootstocks and male selections are being bred in a collaborative programme between ZESPRI and HortResearch. In 2008, ZESPRI placed four new kiwifruit varieties in commercial grower trials.

SUPPLY CHAIN COST REDUCTIONS

The low returns to growers in 2007/08, and the rising costs of inputs on orchard and throughout the supply chain, have prompted the kiwifruit sector to seek cost efficiencies. A working group comprising representatives from suppliers (packhouse and coolstore businesses), ZESPRI and New Zealand Kiwifruit Growers Inc has identified a range of projects with potential for cost

savings. Many of the projects fall into areas managed by ZESPRI, such as promotional costs and product specifications like sizes, packaging and product tracking. ZESPRI has also appointed a supply chain expert whose initial focus is to seek efficiencies in the supply chain to Asia and Europe.

➤ GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

The rise in the minimum wage has affected wage costs across the industry. Much of the packhouse casual labour workforce is paid the minimum wage and the increase to \$12 per hour from 1 April 2008 has applied to most of the 2008 kiwifruit harvest.

The introduction of the Recognised Seasonal Employer (RSE) scheme in April 2007 improved the supply of seasonal labour to harvest and pack the 2008 kiwifruit crop. Permanent staff and an estimated 5000 local seasonal workers were supplemented by around 1800 temporary overseas workers, mainly from the Pacific Islands. The kiwifruit sector hopes that productivity gains from reduced turnover of seasonal staff will offset the costs of the RSE scheme.

➤ ENVIRONMENTAL AND RESOURCE MANAGEMENT

LOW SPRAY DRIFT APPLICATION TECHNOLOGIES

Industry research trials over two seasons have demonstrated excellent results using new low spray drift technologies for the application of bud-breaking materials commonly applied to kiwifruit vines. Commercial use on green kiwifruit vines began in 2007, with plans to extend use to the gold variety from winter 2008.

GREENHOUSE GAS FOOTPRINTING

Kiwifruit is one of the sectors involved in a project on greenhouse gas footprinting that is partially funded by MAF. The project focuses on methodology, particularly applying international greenhouse gas footprinting assessment methodology to the New Zealand kiwifruit sector.

AGRECOVERY PROGRAMME

The Agrecovery programme was launched nationally in 2007 to collect used chemical containers from growers and farmers throughout New Zealand and recycle them. The kiwifruit industry was involved in the origins of the programme, when disposal of used chemical containers was identified as an issue for industry environmental sustainability.

»»» TABLE 5.2: KIWIFRUIT MODEL ORCHARD BUDGET

	2007/08			2008/09 FORECAST		
	WHOLE ORCHARD (\$)	PER HECTARE (\$)	PER CLASS 1 TRAY (\$)	WHOLE ORCHARD (\$)	PER HECTARE (\$)	PER CLASS 1 TRAY (\$)
REVENUE						
Green – OGR ¹ progress	103 732	23 052	2.86	126 630	28 140	3.35
– previous crop final	14 722	3 272	0.41	9 068	2 015	0.24
Gold – OGR progress	21 497	42 994	4.15	25 575	51 150	4.65
– previous crop final	1 754	3 508	0.34	1 554	3 108	0.28
Other fruit crops	3 300	660	0.08	2 200	440	0.05
Sundry orchard income	2 970	594	0.07	2 970	594	0.07
Net cash income	147 975	29 595	3.57	167 997	33 599	3.88
Orchard working expenses	116 626	23 325	2.81	123 373	24 675	2.85
Cash operating surplus	31 349	6 270	0.76	44 624	8 924	1.03
Interest	21 000	4 200	0.51	26 600	5 320	0.61
Rent and/or leases	0	0	0.00	0	0	0.00
Depreciation	13 000	2 600	0.31	11 300	2 260	0.26
Orchard profit before tax	–2 651	–530	–0.06	6 724	1 345	0.16
Tax	650	130	0.02	800	160	0.02
Orchard profit after tax	–3 301	–660	–0.08	5 924	1 185	0.14
Add back depreciation	13 000	2 600	0.31	11 300	2 260	0.26
Net non-fruit cash income	10 400	2 080	0.25	8 710	1 742	0.20
Off-orchard cash income	26 180	5 236	0.63	23 820	4 764	0.55
Discretionary cash	46 279	9 256	1.12	49 754	9 951	1.15
APPLIED TO:						
Net capital purchases	4 100	820	0.10	2 100	420	0.05
Development	3 900	780	0.09	1 500	300	0.03
Drawings	56 700	11 340	1.37	56 000	11 200	1.29
Principal repayments	0	0	0.00	0	0	0.00
New borrowings	0	0	0.00	0	0	0.00
Introduced Funds	0	0	0.00	0	0	0.00
Cash surplus/deficit	–18 421	–3 684	–0.44	–9 847	–1 969	–0.23
Orchard surplus for reinvestment²	–36 601	–7 320	–0.88	–30 067	–6 013	–0.69
ASSETS AND LIABILITIES						
Land and building (opening)	1 575 000	315 000	37.95	1 400 000	280 000	32.33
Plant and machinery (opening)	65 110	13 022	1.57	71 910	14 382	1.66
Orchard related investments (opening)	65 000	13 000	1.57	65 000	13 000	1.50
Total orchard assets (opening)	1 705 110	341 022	41.09	1 536 910	307 382	35.49
Total orchard liabilities (opening)	202 000	40 400	4.87	221 871	44 374	5.12
Total equity	1 503 110	300 622	36.22	1 315 039	263 008	30.37

Notes

1 Orchard gate return.

2 Orchard surplus for reinvestment is calculated as follows: discretionary cash less off-orchard income and drawings.

»» TABLE 5.3: KIWIFRUIT MODEL ORCHARD EXPENDITURE

	2007/08			2008/09 FORECAST		
	WHOLE ORCHARD (\$)	PER HECTARE (\$)	PER CLASS I TRAY (\$)	WHOLE ORCHARD (\$)	PER HECTARE (\$)	PER CLASS I TRAY (\$)
ORCHARD WORKING EXPENSES						
Wages	45 000	9 000	1.09	48 500	9 700	1.12
Picking wages	16 166	3 233	0.39	17 753	3 551	0.41
ACC – employees	0	0	0.00	0	0	0.00
Total labour expenses	61 166	12 233	1.48	66 253	13 251	1.53
Weed and pest control	6 750	1 350	0.16	6 750	1 350	0.16
Pollination	7 600	1 520	0.18	7 600	1 520	0.18
Fertiliser and lime	6 250	1 250	0.15	6 750	1 350	0.16
Electricity	1 000	200	0.02	1 050	210	0.02
Vehicle (including fuel)	7 000	1 400	0.17	6 800	1 360	0.16
Repairs and maintenance	6 950	1 390	0.17	8 300	1 660	0.19
General	2 250	450	0.05	2 100	420	0.05
Frost protection	0	0	0.00	0	0	0.00
Contract machine work	800	160	0.02	850	170	0.02
Total other working expenses	38 600	7 720	0.93	40 200	8 040	0.93
Rates	3 600	720	0.09	3 600	720	0.08
Insurance	2 070	414	0.05	2 070	414	0.05
ACC – owners	1 520	304	0.04	1 570	314	0.04
Communication	2 700	540	0.07	2 700	540	0.06
Accountancy	3 600	720	0.09	3 600	720	0.08
Legal and consultancy	1 870	374	0.05	1 870	374	0.04
Levies and subscriptions	400	80	0.01	410	82	0.01
Other administration	1 100	220	0.03	1 100	220	0.03
Total overheads	16 860	3 372	0.41	16 920	3 384	0.39
Orchard working expenses	116 626	23 325	2.81	123 373	24 675	2.85
Wages of management	48 051	9 610	1.16	46 369	11 944	1.38
Depreciation	13 000	2 600	0.31	11 300	2 260	0.26
Total orchard operating expenses	177 677	35 535	4.29	181 042	36 208	4.18
CALCULATED RATIOS						
Economic orchard surplus (EOS) ¹	-29 702	-5 940	-0.72	-13 046	-2 609	-0.30
Orchard working expenses/NCI ²	79%			73%		
EOS/total orchard assets	-1.7%			-0.8%		
EOS less interest and lease/equity	-3.4%			-3.0%		
Interest + rent + lease/NCI	14.2%			15.8%		
EOS/NCI	-20.1%			-7.8%		

Notes

1 EOS (or earnings before interest and tax) is calculated as follows: net cash income less orchard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total orchard assets to a maximum of \$75 000.

2 Net cash income.

PIPFruit

6

»» KEY POINTS

- › Favourable climatic conditions led to increased yields of pipfruit in the Hawkes Bay and Nelson regions in 2007. However, poor market returns for Braeburn and a strong New Zealand dollar constrained revenue: the Hawkes Bay orchard obtained a modest profit while the Nelson orchard experienced a loss.
- › The 2008 growing season was characterised by two severe frost events in Hawkes Bay, reducing gross yield in the model orchard by 15 percent. Export yield for Braeburn, the variety most affected, is down by 40 percent. The Nelson region escaped any significant frost damage with good export recovery rates.
- › Demand is strong for New Zealand pipfruit in overseas markets in 2008, influenced by the reduced export crop from New Zealand and other southern hemisphere countries. Growers are confident market prices will improve, forecasting an average return of \$22.40 or above per export carton – higher than at any time in the past six years.
- › Orchard profitability continues to be challenged by rising input costs. Increased costs of fuel, electricity and labour are impacting directly but also indirectly through post-harvest charges.
- › The Nelson orchard forecasts a significant improvement in profitability for 2008, which will provide funds for ongoing development and debt reduction. Forecast profit levels for the Hawkes Bay orchard are similar to 2006, limiting the scale of redevelopment into new varieties and intensive plantings without incurring significant new debt.

»» FINANCIAL PERFORMANCE OF THE HAWKES BAY PIPFRUIT MODEL ORCHARD IN 2007

The 2006/07 season was one of the best pipfruit production seasons in Hawkes Bay for many years. The favourable growing conditions resulted in both high gross yields and good export packouts. However, poor market performance by Braeburn in particular and a strong New Zealand dollar constrained most growers' revenue. The net result in 2007 was a poorer outcome than expected, with the model returning an orchard profit before tax of \$32 841. See Tables 6.3 and 6.4 for details of the model orchard's income and expenditure in 2007.

› REVENUE UP DUE TO HIGH YIELDS

Net cash income for the model orchard was 8 percent higher in 2007, driven by a 15 percent increase in export production. Early spring conditions were optimal for fruit set and cell division, resulting in good fruit size and fruit quality parameters at harvest. Cool weather in early summer favoured fruit colour development, so early-season varieties, particularly Royal Gala, packed out well and achieved 82 percent export recovery compared with 75 percent in 2006. Relatively warm temperatures in late February and early March caused significant sunburn damage to mid-season varieties where fruit had not been well conditioned to higher temperatures or bright sunshine. Braeburn was the variety most affected, and packout rates dropped from 75 to 68 percent. Rain prior to harvest also led to poor fruit pressure for this variety and, consequently, more bruises and punctures.



»» TABLE 6.1: KEY PARAMETERS, FINANCIAL RESULTS AND FORECASTS FOR THE PIPFRUIT MODELS¹

YEAR ENDED 31 DECEMBER	2004	2005	2006	2007	2008 FORECAST
HAWKES BAY MODEL					
Area available for pipfruit (ha)	21.3	21.3	28	28	28
Planted area (ha)	17	17	22	22	22
Total TCE ²	53 636	50 373	57 401	63 279	53 667
Export TCE	38 045	32 804	38 039	43 671	36 930
Weighted average return (\$/export TCE) ³	17.12	15.05	20.72	19.63	22.42
Net cash income (\$)	688 505	542 926	849 910	918 069	891 914
Orchard working expenses (\$)	680 481	593 697	690 448	791 706	725 326
Orchard profit before tax (\$)	-52 002	-124 721	75 400	32 841	72 780
Orchard surplus for reinvestment (\$) ⁴	-100 425	-143 268	42 092	-5 647	26 832
NELSON MODEL					
Area available for pipfruit (ha)	26	28	28	29	29
Planted area (ha)	19.3	26	26	27	27
Total TCE	60 688	84 955	82 089	91 494	88 159
Export TCE	47 388	64 413	60 151	64 937	64 134
Weighted average return (\$/export TCE)	15.71	13.09	19.62	18.89	22.64
Net cash income (\$)	783 939	915 281	1 301 145	1 304 999	1 516 122
Orchard working expenses (\$)	778 805	1 025 213	1 116 678	1 227 533	1 175 193
Orchard profit before tax (\$)	-67 260	-242 559	2 961	-48 813	208 818
Orchard surplus for reinvestment (\$)	-97 202	-208 197	17 599	-77 244	181 332

Notes

1 Caution should be taken when comparing figures between years due to differences in planted areas.

2 Tray carton equivalent is a measure of apple and pear weight. A TCE is defined as 18.6 kilograms packed weight, which equates to 18.0 kilograms sale weight.

3 Returns per export TCE are expressed at free alongside ship (FAS return). This is the value of the product at the ship's side net of commission, additional packaging costs and controlled atmosphere or SmartFresh™ costs.

4 Orchard surplus for reinvestment represents the cash available from the orchard business after meeting living costs, which is available for investment on the orchard or for principal repayments. It is calculated as discretionary cash less off-orchard income and drawings.

Towards the end of harvest, warm and dry weather conditions with good diurnal temperatures gave some of the best colour development the district has seen in later red varieties, including Pink Lady™, Pacific Rose™ and Fuji. As a result, the packout rates achieved for these varieties were 10 percent higher than in 2006.

Further details of production and income variables for the Hawkes Bay model orchard in 2007 are included in Table 6.5.

DISMAL EXPORT RETURNS FOR BRAEBURN

The average return per export carton of \$19.63 was lower than what growers had hoped for when surveyed in May 2007, largely driven by the poor market performance of Braeburn (Table 6.2). While well above the 2005 price of \$10.09, the average return of \$15.15 per export carton for Braeburn in 2007 was still considerably below total orchard operating costs¹, dealing another blow to growers who were still struggling from the financial lows of the 2005 season.

¹ Total orchard operating costs are calculated as follows: orchard working expenses plus wages of management, depreciation, rent and lease costs, and interest. Total orchard operating costs were \$21.38 per export carton for the Hawkes Bay model in 2007.

The low Braeburn price can be attributed to a number of factors, including a large New Zealand Braeburn crop of 6 million export cartons, increased quality problems, competition from other varieties, and the use of improved storage technology by European growers. Slow sales rates also meant that quality issues such as bitter pit and blotch had time to develop, leading to problems at export outturn and fruit having to be repacked abroad at significant expense to the grower.

► EXPENDITURE DRIVEN UP BY LARGE CROP AND INCREASING COSTS OF INPUTS

Orchard working expenses increased by 15 percent in 2007. The increase was driven by the increase in production and rising costs of labour and fuel. The combination of an already tight labour market and a large crop pushed up the cost of harvesting to \$1.92 per gross carton, an increase of 7 percent on 2006. The minimum wage rate also increased.

Post-harvest costs in 2007 at \$9.03 per export carton were similar to the \$8.94 recorded in 2006, despite the cost of freight from the orchard to the packhouse increasing significantly due to rising fuel prices. Post-harvest operators also felt the effects of increasing input prices, such as labour and electricity, which was reflected in the 4 percent increase in coolstorage costs in 2007.

Operating costs per hectare were up by 13 percent, influenced by the rising fuel prices. Fertiliser costs also made an impact in 2007, as growers applied fertiliser to young blocks to increase production, despite higher fertiliser prices.

►► TABLE 6.2: AVERAGE HAWKES BAY PIPFRUIT FAS¹ EXPORT RETURNS

	2004	2005	2006	2007	2008 FORECAST
VARIETY	(\$/TCE ²)	(\$/TCE)	(\$/TCE)	(\$/TCE)	(\$/TCE)
Braeburn	15.42	10.09	19.38	15.15	20.75
Fuji	21.66	22.39	25.14	26.81	25.85
Granny Smith	15.28	14.13	19.13	17.52	19.52
Jazz™	...	30.63	35.15	30.26	30.42
Pacific Rose™	13.54	16.33	22.44	21.24	24.79
Pink Lady™	25.68	23.25	28.52	26.31	26.80
Royal Gala	17.50	15.44	20.31	19.71	20.20
Weighted average	17.12	15.05	20.72	19.63	22.42

Notes

1 Free alongside ship.

2 Tray carton equivalent.

Symbol

... Not applicable.

Source

MAF Monitoring Reports; 2004 to 2008.

➤ A DISAPPOINTING NET RESULT

Despite 2007 being a good production season, the net financial result was disappointing for most Hawkes Bay growers. The model returned a cash operating surplus of \$126 363, down 21 percent on 2006. Higher interest payments due to increased debt and higher interest rates further reduced profitability, leading to a net trading profit before tax of \$32 841, less than half of the profit level achieved in 2006.

Liabilities in the Hawkes Bay model orchard increased by 15 percent between 2006 and 2007. This increase reflects the fallout from the substantial losses incurred in 2004 and 2005. Debt levels also increased due to new borrowing, as growers spent more on orchard redevelopment and invested in new, higher-paying apple varieties such as Jazz™, Pink Lady™ and Pacific Queen™. Despite the increase in liabilities, owner equity in the model orchard remains reasonable at 70 percent, as land values are maintained on the Heretaunga Plains.

➤➤ FORECAST FINANCIAL PERFORMANCE OF THE HAWKES BAY PIPFRUIT MODEL ORCHARD IN 2008

The 2008 growing season was characterised by two severe frost events that significantly reduced gross yields, particularly in Braeburn. However, Hawkes Bay growers are optimistic about fruit prices in 2008 due to a smaller crop from New Zealand and other southern hemisphere countries, resulting in good market demand.

The model orchard forecasts a decrease in export production of 15 percent compared with 2007 but the high price expectations limit the drop in net cash income to 3 percent. See Tables 6.3 and 6.4 for details of the model orchard's forecast income and expenditure in 2008.

➤ REVENUE POTENTIAL CURTAILED BY FROST

Two severe frosts on 4 October 2007 and 20 October 2007 reduced gross yield by 15 percent, with the yield for Braeburn (the variety most affected) down by 39 percent. With growers also removing a proportion of Braeburn trees in winter 2007, the combined effect is that the export Braeburn crop in the model orchard is less than half of what it was in 2007.

Jazz™, an early flowering variety, also suffered frost damage but the full extent of the damage is masked by new plantings coming on stream. Yield in 2008 is estimated to be half of the yield potential for this variety had the frosts not occurred.

The effect of the frosts on other varieties is lower, except where dormancy breakers had been applied to advance flowering. Yields of Pacific Beauty™, Pacific Queen™ and Fuji were significantly reduced where flowering had been advanced. Royal Gala compensated for the damage by setting its crop on later flowers. However, this led to small fruit size at harvest. The Hawkes Bay district average fruit size for Royal Gala for the 2008 season is expected to be a 120² count average. This is down from an average count of 112 achieved over the past few years.

Several orchards in Hawkes Bay experienced woolly apple aphid pest problems in the 2007/08 growing season with

² The count refers to the number of apples in a carton. Smaller numbers therefore imply larger fruit.

significant impacts on late season varieties. The damage caused by woolly apple aphid also has the potential to affect the 2009 crop, as there was widespread bud damage. The industry is very concerned about the problem and is working with key researchers at HortResearch to provide sustainable solutions.

There was little fruit lost from hail in 2008 as the only significant hailstorm of the season occurred in a confined area just after blossom.

Further details of production and income variables for the Hawkes Bay model orchard in 2008 are included in Table 6.6.

CAREFUL CROP MANAGEMENT DELIVERS GOOD EXPORT QUALITY

Cool, dry conditions in spring favoured a good fruit finish. This resulted in higher export packout rates for russet-prone varieties, such as the Pacific series (particularly Pacific Queen™).

An option for many growers with frost-affected Braeburn crops in 2008 was to pick this fruit for juice rather than packing it for export. Lighter crops as a result of the frost led to a higher bitter pit risk in susceptible varieties such as Braeburn and Jazz™. In response to the quality issues experienced in 2007, significant investment was made by growers and packhouses in the risk assessment of crops prior to harvest, and in post-harvest management to limit fruit quality problems in-market later on. As a consequence, the average export packout rate for Braeburn in 2008 has fallen to 56 percent, well below its long-term average of 72 percent. Growers were able to salvage a fixed value for the crop by sending fruit straight to processing, particularly at a time of high juice prices, rather than harvesting for export and risking post-harvest storage disorders, costly repacking and uncertain returns.

With the Hawkes Bay district accounting for over 60 percent of the planted pipfruit area, the frosts have had a significant impact, reducing the national Braeburn export crop to 4.0 to 4.5 million cartons, compared with 6 million cartons in 2007. The 2008 total New Zealand export crop is expected to be around 14.5 million cartons compared with 16.5 million in 2007.

Further details of national pipfruit production areas and export volumes, broken down by region and variety, are presented in Tables A4.1 and A4.2 in Appendix 4.



EXPORT RETURNS PROMISING

A reduced export crop from New Zealand and other southern hemisphere countries in 2008 has led to good market demand. This, combined with a weakening of the New Zealand dollar against the euro, increased growers' confidence of an improvement in market prices in 2008, with a forecast average return of \$22.42 per export carton (Table 6.2).

➤ SIGNIFICANT INCREASE IN UNIT COSTS FORECAST

Orchard working expenses for the model orchard are forecast to decline by 8 percent overall in 2008. This decrease is driven by the 15 percent reduction in gross yield due to frost damage, although it is moderated by significant increases in the costs of fuel and labour and post-harvest costs. When orchard working expenses are expressed on a per export carton basis, significant cost increases are forecast for 2008 at \$19.64 per export carton, up from \$18.13 in 2006 and 2007.

Wage costs per gross carton are expected to increase by 7 percent in 2008, with the most significant increase being in harvesting costs. The increase in the minimum wage rate from April 2008 is putting further pressure on growers' labour expenditure, as well as the increased costs being passed on by contractors for the supply of labour.

Fuel costs are pushing orchard expenditure higher, with direct expenditure on fuel having increased by 30 percent since 2006. Growers are also paying higher cartage rates to get their fruit to the packhouse. Post-harvest operators are passing on the rising costs of labour and electricity to growers in packing and coolstorage charges. The outcome is an increase in post-harvest costs in 2008, up from \$9.03 to \$9.54 per export carton.

➤ NET RESULT OPTIMISTIC WITH CONTINUING REDEVELOPMENT

Despite a lower crop due to frosts in 2008 and a significant increase in unit costs, the Hawkes Bay model is forecast to achieve a cash operating surplus of \$166 588, an increase of 32 percent on 2007 and similar to that achieved in 2006. Higher prices for all varieties, (particularly Braeburn and Royal Gala) are driving these expectations.

Planned expenditure on development is down by 24 percent compared with 2007, but capital expenditure is higher as growers act to protect future income by investing in frost protection. The bottom line shows a breakeven-type result with a cash surplus of just \$3842. This outcome is due to the reduced crop in Hawkes Bay in 2008, and it contrasts with the very strong result expected in the Nelson model orchard.

»» TABLE 6.3: HAWKES BAY PIPFRUIT MODEL ORCHARD BUDGET

	2007				2008 FORECAST			
	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE ¹ GROSS (\$)	PER TCE EXPORT (\$)	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE GROSS (\$)	PER TCE EXPORT (\$)
REVENUE								
Pipfruit income	903 549	41 070	14.28	20.69	877 394	39 882	16.35	23.76
Other orchard income	14 520	660	0.23	0.33	14 520	660	0.27	0.39
Net cash income	918 069	41 730	14.51	21.02	891 914	40 542	16.62	24.15
Orchard working expenses	791 706	35 987	12.51	18.13	725 326	32 969	13.52	19.64
Cash operating surplus	126 363	5 744	2.00	2.89	166 588	7 572	3.10	4.51
Interest	50 072	2 276	0.79	1.15	51 018	2 319	0.95	1.38
Rent and/or leases	20 438	929	0.32	0.47	20 438	929	0.38	0.55
Depreciation	23 012	1 046	0.36	0.53	22 352	1 016	0.42	0.61
Orchard profit before tax	32 841	1 493	0.52	0.75	72 780	3 308	1.36	1.97
Tax	8 700	395	0.14	0.20	14 400	655	0.27	0.39
Orchard profit after tax	24 141	1 097	0.38	0.55	58 380	2 654	1.09	1.58
Add back depreciation	23 012	1 046	0.36	0.53	22 352	1 016	0.42	0.61
Off-orchard cash income	22 704	1 032	0.36	0.52	23 056	1 048	0.43	0.62
Discretionary cash	69 857	3 175	1.10	1.60	103 788	4 718	1.93	2.81
APPLIED TO:								
Net capital purchases	18 370	835	0.29	0.42	26 246	1 193	0.49	0.71
Development	26 070	1 185	0.41	0.60	19 800	900	0.37	0.54
Drawings	52 800	2 400	0.83	1.21	53 900	2 450	1.00	1.46
Principal repayments	0	0	0.00	0.00	0	0	0.00	0.00
New borrowings	20 000	909	0.32	0.46	0	0	0.00	0.00
Introduced funds	0	0	0.00	0.00	0	0	0.00	0.00
Cash surplus/deficit	-7 383	-336	-0.12	-0.17	3 842	175	0.07	0.10
Orchard surplus for reinvestment²	-5 647	-257	-0.09	-0.13	26 832	1 220	0.50	0.73
ASSETS AND LIABILITIES								
Land and building (opening)	1 600 000	72 727	25.28	36.64	1 600 000	72 727	29.81	43.33
Plant and machinery (opening)	105 600	4 800	1.67	2.42	98 450	4 475	1.83	2.67
Orchard related investments (opening)	0	0	0.00	0.00	0	0	0.00	0.00
Total orchard assets (opening)	1 705 600	77 527	26.95	39.06	1 698 450	77 202	31.65	45.99
Total orchard liabilities (opening)	525 000	23 864	8.30	12.02	545 000	24 773	10.16	14.76
Total equity	1 180 600	53 664	18.66	27.03	1 153 450	52 430	21.49	31.23

Notes

1 Tray carton equivalent.

2 Orchard surplus for reinvestment is calculated as follows: discretionary cash less off-orchard income and drawings.

»» TABLE 6.4: HAWKES BAY PIPFRUIT MODEL ORCHARD EXPENDITURE

	2007				2008 FORECAST			
	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE ¹ GROSS (\$)	PER TCE EXPORT (\$)	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE GROSS (\$)	PER TCE EXPORT (\$)
ORCHARD WORKING EXPENSES								
Hand harvesting	121 496	5 523	1.92	2.78	109 480	4 976	2.04	2.96
Pruning	31 944	1 452	0.50	0.73	31 438	1 429	0.59	0.85
Thinning	41 470	1 885	0.66	0.95	35 992	1 636	0.67	0.97
Other wages	35 904	1 632	0.57	0.82	32 670	1 485	0.61	0.88
ACC – employees	2 310	105	0.04	0.05	2 618	119	0.05	0.07
Total labour expenses	233 124	10 597	3.68	5.34	212 198	9 645	3.95	5.75
Packing	151 539	6 888	2.39	3.47	139 965	6 362	2.61	3.79
Packaging	151 975	6 908	2.40	3.48	129 994	5 909	2.42	3.52
Cool storage	78 608	3 573	1.24	1.80	70 906	3 223	1.32	1.92
Freight	12 023	547	0.19	0.28	11 270	512	0.21	0.31
Total post harvest expenses	394 145	17 916	6.23	9.03	352 135	16 006	6.56	9.54
Weed and pest control	55 682	2 531	0.88	1.28	53 746	2 443	1.00	1.46
Pollination	1 078	49	0.02	0.02	1 122	51	0.02	0.03
Fertiliser and lime	4 114	187	0.07	0.09	3 212	146	0.06	0.09
Electricity	4 466	203	0.07	0.10	4 884	222	0.09	0.13
Vehicle	8 404	382	0.13	0.19	8 712	396	0.16	0.24
Fuel	13 222	601	0.21	0.30	14 630	665	0.27	0.40
Repairs and maintenance	19 756	898	0.31	0.45	17 952	816	0.33	0.49
General	6 930	315	0.11	0.16	7 106	323	0.13	0.19
Frost protection	1 584	72	0.03	0.04	902	41	0.02	0.02
Contract machine work	1 496	68	0.02	0.03	1 562	71	0.03	0.04
Total other working expenses	116 732	5 306	1.84	2.67	113 828	5 174	2.12	3.08
Rates	6 666	303	0.11	0.15	7 062	321	0.13	0.19
General insurance	3 740	170	0.06	0.09	3 806	173	0.07	0.10
Crop insurance	12 562	571	0.20	0.29	11 990	545	0.22	0.32
ACC – owners	2 068	94	0.03	0.05	2 024	92	0.04	0.05
Communication	3 586	163	0.06	0.08	3 498	159	0.07	0.09
Accounting	3 498	159	0.06	0.08	3 454	157	0.06	0.09
Legal and consultancy	2 574	117	0.04	0.06	3 718	169	0.07	0.10
Levies and subscriptions	10 481	476	0.17	0.24	8 863	403	0.17	0.24
Other administration	2 530	115	0.04	0.06	2 750	125	0.05	0.07
Total overhead expenses	47 705	2 168	0.75	1.09	47 165	2 144	0.88	1.28
Total orchard working expenses	791 706	35 987	12.51	18.13	725 326	32 969	13.52	19.64
Wages of management	48 056	2 184	0.76	1.10	47 985	2 181	0.89	1.30
Depreciation	23 012	1 046	0.36	0.53	22 352	1 016	0.42	0.61
Total orchard operating expenses	862 774	39 217	13.63	19.76	795 663	36 166	14.83	21.55
CALCULATED RATIOS								
Economic orchard surplus (EOS) ²	55 295	2 513	0.87	1.27	96 252	4 375	1.79	2.61
Orchard working expenses/NCI ³	86%				81%			
EOS/Total orchard assets	3.2%				5.7%			
EOS less interest and lease/equity	-1.3%				2.1%			
Interest + rent + lease/NCI	7.7%				8.0%			
EOS/NCI	6.0%				10.8%			

Notes

1 Tray carton equivalent.

2 EOS (earnings before interest and tax) is calculated as follows: net cash income less orchard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total orchard assets to a maximum of \$75 000.

3 Net cash income.

»» TABLE 6.5: HAWKES BAY PIPFRUIT PRODUCTION AND INCOME DETAILS, 2007

	AREA (HA)	GROSS YIELD (TCE ¹)	EXPORT RECOVERY (%)	TOTAL EXPORT CARTONS	EXPORT RETURN (\$/TCE)	NON- EXPORT RETURN (\$/TCE)	REVENUE (\$)
YEAR ENDED 31 DECEMBER							
VARIETY							
Braeburn	5.28	20 972	68	14 345	15.15	0.66	221 700
Fuji	3.08	7 891	68	5 356	26.81	0.82	145 683
Granny Smith	0.88	2 863	45	1 286	17.52	5.27	30 845
Jazz™	1.76	1 306	75	980	30.26	1.74	30 228
Pacific Beauty™	0.66	1 187	70	833	21.30	1.96	18 435
Pacific Queen™	0.66	2 007	68	1 360	22.89	7.84	36 200
Pacific Rose™	1.76	4 979	33	1 632	21.24	6.30	55 745
Pink Lady™	0.88	1 898	67	1 269	26.31	0.83	33 917
Royal Gala	7.04	20 177	82	16 609	19.71	0.96	330 796
Total/average	22.00	63 279	69	43 671	19.63	2.35	903 549

Note

1 Tray carton equivalent.

»» TABLE 6.6: HAWKES BAY PIPFRUIT FORECAST PRODUCTION AND INCOME DETAILS, 2008

	AREA (HA)	GROSS YIELD (TCE ¹)	EXPORT RECOVERY (%)	TOTAL EXPORT CARTONS	EXPORT RETURN (\$/TCE)	NON- EXPORT RETURN (\$/TCE)	REVENUE (\$)
YEAR ENDED 31 DECEMBER							
VARIETY							
Braeburn	4.40	12 729	56	7 167	20.75	1.99	159 775
Fuji	3.08	7 306	75	5 490	25.85	1.89	145 337
Granny Smith	0.97	3 226	45	1 457	19.52	4.14	35 761
Jazz™	2.42	2 096	80	1 676	30.42	0.59	51 230
Pacific Beauty™	0.73	913	69	631	24.19	1.69	15 743
Pacific Queen™	0.88	1 831	80	1 465	26.37	3.70	39 992
Pacific Rose™	1.61	3 761	37	1 379	24.79	7.80	52 765
Pink Lady™	1.10	2 613	75	1 967	26.80	2.11	54 089
Royal Gala	6.82	19 191	82	15 699	20.20	1.60	322 701
Total/average	22.00	53 667	69	36 930	22.42	2.95	877 394

Note

1 Tray carton equivalent.

»» FINANCIAL PERFORMANCE OF THE NELSON PIPFRUIT MODEL ORCHARD IN 2007

The planted area of the Nelson model orchard increased to 27 hectares in 2007. Income from pipfruit in 2007 remained similar to 2006, despite an increase in gross yield of 11 percent and an increase in export yield of 8 percent. Poor market returns for Braeburn (the predominant variety in most Nelson orchards), lower packout rates and a strong New Zealand dollar were the main reasons for the constraint on revenue. The net result was a return to a loss situation in 2007, with the model orchard recording a net trading loss before tax of \$48 813.

See Tables 6.10 and 6.11 for details of the model orchard's income and expenditure in 2007.

» REVENUE CONSTRAINED BY LOW RETURNS AND AVERAGE QUALITY

The 2006/07 season in Nelson saw a heavy Braeburn crop, up 13 percent in export yield per hectare compared with 2006 due to favourable climatic conditions. Jazz™ also increased in production by around 50 percent on a per hectare basis due to favourable climatic conditions and young plantings coming on stream.

Despite good gross yields, the heavy crop loads, warm season and poor colour development lowered Braeburn packout rates to 71 percent, down 3 percent compared with 2006. A similar trend occurred with Jazz™, where average packout rates of 75 percent represent a drop of 11 percent compared with 2006. The large drop in the Jazz™ packout rate was also due to the controlling export company, ENZA International, tightening up on torn stem defects, a problem associated with Jazz™ being a short-stemmed variety.

Overall, packouts across many varieties in Nelson were mediocre in 2007 due mainly to blemish, wind rub, sunburn and heavy crop loads. There was some hail in the Waimea Plains but no more than in previous years.

Further details of production and income variables for the Nelson model orchard in 2007 are included in Table 6.8.

EXPORT RETURNS LESS THAN EXPECTED

The average return per export carton in 2007 was \$18.89 (Table 6.7), largely influenced by the prices received for Braeburn and Royal Gala which made up 81 percent of the model orchard's export crop. Smaller fruit size arising from heavier crop loads, better quality fruit and good marketing allowed Nelson growers to achieve an average return for Braeburn of \$16.90 per export carton, 12 percent up on Braeburn returns achieved in Hawkes Bay.

The 2007 season was good for Cox Orange, with the low volumes ensuring good in-market prices. Jazz™, at \$27.44 per export carton, suffered some reduction in price premium in 2007, falling about 12 percent compared with 2006. An unfavourable shift in the exchange rate and a move by the controlling export company, ENZA International, toward a more size-weighted return profile, contributed to this price decrease. For this small-fruited variety, growers now have more incentive to grow larger sizes to achieve higher returns.



› ORCHARD WORKING EXPENSES CONTINUE TO INCREASE

Orchard working expenses increased by 6 percent to over \$45 000 per hectare. Labour expenditure in 2007 was higher than in 2006 due to a larger crop and an increase in the cost of labour for harvesting. The increase in the minimum wage rate also contributed to the rise in overall labour costs.

A combination of higher packing costs and a lower packout rate for Braeburn (the predominant variety) pushed up per-unit post-harvest costs in 2007, from \$8.77 to \$9.13 per export carton. However, growers managed to hold operating costs steady, despite increases in fuel and electricity costs.

› DISAPPOINTING NET RESULT ADDS IMPETUS FOR FURTHER REDEVELOPMENT

The model orchard returned a net trading loss before tax of \$48 813. Most growers in Nelson with a heavy reliance on Braeburn and Royal Gala would have made losses in 2007. The continuing poor performance of these commodity varieties seems to have encouraged growers to continue redeveloping their orchards by planting pears and new, higher-paying apple varieties such as Jazz™, Tentation™ and Fuji in winter 2007. Increased borrowings funded this development, as the existing orchard had not made sufficient profits. Some growers have even sold off-orchard assets to stay in business.

Owner equity in the Nelson model at 66 percent reflects the increase in liabilities and the static values of orchards in the Nelson region. The increased debt is also beginning to impact on cash flows as interest rates climb. However, growers expect that their investment in more marketable varieties and the resultant increase in profit will raise orchard values in the medium term.

››› FORECAST FINANCIAL PERFORMANCE OF THE NELSON PIPFRUIT MODEL ORCHARD IN 2008

Good yields and improved market prospects give Nelson growers reasons to be optimistic about the 2008 season. Net cash income is predicted to increase by 16 percent compared with 2007, along with a four-fold increase in the cash operating surplus.

See Tables 6.10 and 6.11 for details of the model orchard's forecast income and expenditure.

› GOOD YIELDS AND RETURNS COMBINE TO MAXIMISE REVENUE

In 2008, the model orchard is forecast to produce a slightly smaller crop (88 159 gross cartons) compared with 2007 but higher packout rates overall mean a similar export crop is expected.

Gross yield of Braeburn is forecast to be down 17 percent on the large crop produced in 2007 due to a minor spring frost and the biennial habits of Braeburn causing some blocks to revert to an

»» TABLE 6.7: AVERAGE NELSON PIPFRUIT FAS¹ EXPORT RETURNS

VARIETY	2004 (\$/TCE ²)	2005 (\$/TCE)	2006 (\$/TCE)	2007 (\$/TCE)	2008 FORECAST (\$/TCE)
Braeburn	14.18	10.30	18.06	16.90	20.65
Royal Gala	16.75	14.42	19.49	18.65	21.80
Cox	18.02	17.28	20.00	23.33	21.78
Jazz™	...	31.85	33.25	27.44	29.64
Other apples	16.64	17.09	19.22	23.60	25.72
Pears	24.54	29.58	33.44	29.58	32.27
Weighted average	15.71	13.09	19.62	18.89	22.64

Notes

1 Free alongside ship.
2 Tray carton equivalent.

Symbol

... Not applicable.

Source

MAF Monitoring reports; 2004 to 2008.

“off” year. The contribution of Jazz™ to the model orchard has increased, accounting for 14 percent of the planted area.

Packout rates for Braeburn are expected to be slightly lower, at 70 percent in 2008, due mainly to colour problems and oversize fruit. Royal Gala packout rates on the other hand are expected to be at their highest levels for the last few years, at around 80 percent, and average fruit size is forecast to be good, reaching a count of 106. Jazz™, Cox Orange and pear varieties are all expected to pack out well in 2008. The overall impact is that export recovery for the model orchard in 2008 is up to 73 percent, a similar level to 2006.

GOOD EXPORT RETURNS EXPECTED

Overall, growers are optimistic about returns for export apples in 2008, forecasting an average return of \$22.64 per export carton (Table 6.7). This represents a lift of 20 percent in the average export price compared with 2007.

Growers are forecasting a return of \$20.65 per export carton for Braeburn, a dramatic improvement on the \$16.90 achieved in 2007. Higher returns than last season are also expected for Royal Gala, given a larger fruit size and good market demand. Royal Gala coming out of Hawkes Bay is forecast to be of small fruit size, so large fruit will be in short supply.

➤ GROWERS HOPE TO CONSTRAIN ORCHARD WORKING EXPENSES

Growers are forecasting that orchard working expenses will remain at similar levels to 2007. The higher export recovery rates are helping to reduce unit costs, with orchard working expenses falling to \$18.32 per export carton in 2008 from \$18.90 in 2007.

Wage costs per export carton are expected to remain steady. In 2007, Nelson growers made a large investment in labour to manage the significant increase in young tree plantings. In 2008, the young tree work is budgeted to return to normal levels. Growers are also looking for efficiencies to reduce hand-thinning costs through better chemical thinner application and improved winter pruning.

Unlike their counterparts in Hawkes Bay, the Nelson grower panel hopes to save costs in many other areas, including weed and pest control, and even vehicle and fuel costs. Despite growers' best endeavours, primary orchard costs associated with fuel and electricity are expected to trend upwards in 2008.

Growers also hope interest costs will decrease following a reduction in interest rates later in 2008.

➤ VERY HEALTHY NET RESULT

The model's orchard profit before tax is forecast to increase to \$208 818 in 2008, a significant recovery from the net trading loss of \$48 813 in 2007, and a welcome boost to industry confidence. Growers in the Nelson region have worked hard to strategically restructure their businesses following the traumatic market results of 2004 and 2005.

Discretionary cash is forecast to increase 25-fold in 2008 (up by \$258 171) compared with 2007. Many growers will use this significant improvement in cash position to repay their loan principal and increase investment in orchard redevelopment. Growers are well aware of their overexposure in Braeburn and Royal Gala and, while these varieties are expected to perform well in 2008, experience shows that a positive outcome cannot be guaranteed every season.

»» TABLE 6.8: NELSON PIPFRUIT PRODUCTION AND INCOME DETAILS, 2007

	AREA (HA)	GROSS YIELD (TCE ¹)	EXPORT RECOVERY (%)	TOTAL EXPORT CARTONS	EXPORT RETURN (\$/TCE)	NON- EXPORT RETURN (\$/TCE)	REVENUE (\$)
YEAR ENDED 31 DECEMBER							
VARIETY							
Braeburn	10.5	52 503	71	37 277	16.90	1.07	646 270
Royal Gala	7.6	19 588	79	15 474	18.65	0.96	292 548
Cox Orange	2.2	5 599	57	3 191	23.33	0.74	76 234
Jazz™	2.4	4 150	75	3 113	27.44	0.65	86 091
Other apples	2.7	6 782	63	4 273	23.60	2.80	107 867
Pears	1.6	2 872	56	1 608	29.58	1.26	49 171
Total/average	27.0	91 494	71	64 937	18.89	1.18	1 258 181

Note

1 Tray carton equivalent.

»» TABLE 6.9: NELSON PIPFRUIT FORECAST PRODUCTION AND INCOME DETAILS, 2008

	AREA (HA)	GROSS YIELD (TCE ¹)	EXPORT RECOVERY (%)	TOTAL EXPORT CARTONS	EXPORT RETURN (\$/TCE)	NON- EXPORT RETURN (\$/TCE)	REVENUE (\$)
YEAR ENDED 31 DECEMBER							
VARIETY							
Braeburn	9.7	43 653	70	30 557	20.65	1.67	652 867
Royal Gala	7.0	21 011	80	16 809	21.80	1.54	372 901
Cox Orange	2.2	6 108	60	3 665	21.78	1.00	82 269
Jazz™	3.8	6 619	83	5 494	29.64	0.87	163 809
Other apples	2.7	7 214	71	5 122	25.72	2.63	137 246
Pears	1.6	3 554	70	2 488	32.27	1.43	81 812
Total/average	27.0	88 159	73	64 134	22.64	1.61	1 490 904

Note

1 Tray carton equivalent.

»» TABLE 6.10: NELSON PIPFRUIT MODEL ORCHARD BUDGET

	2007				2008 FORECAST			
	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE ¹ GROSS (\$)	PER TCE EXPORT (\$)	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE GROSS (\$)	PER TCE EXPORT (\$)
REVENUE								
Pipfruit income	1 258 181	46 599	13.75	19.38	1 490 904	55 219	16.91	23.25
Other orchard income	46 818	1 734	0.51	0.72	25 218	934	0.29	0.39
Net cash income	1 304 999	48 333	14.26	20.10	1 516 122	56 153	17.20	23.64
Orchard working expenses	1 227 533	45 464	13.42	18.90	1 175 193	43 526	13.33	18.32
Cash operating surplus	77 466	2 869	0.85	1.19	340 929	12 627	3.87	5.32
Interest	75 330	2 790	0.82	1.16	75 951	2 813	0.86	1.18
Rent and/or leases	19 980	740	0.22	0.31	24 246	898	0.28	0.38
Depreciation	30 969	1 147	0.34	0.48	31 914	1 182	0.36	0.50
Orchard profit before tax	-48 813	-1 808	-0.53	-0.75	208 818	7 734	2.37	3.26
Tax	0	0	0.00	0.00	0	0	0.00	0.00
Orchard profit after tax	-48 813	-1 808	-0.53	-0.75	208 818	7 734	2.37	3.26
Add back depreciation	30 969	1 147	0.34	0.48	31 914	1 182	0.36	0.50
Off-orchard cash income	6 858	254	0.07	0.11	6 453	239	0.07	0.10
Discretionary cash	-10 986	-407	-0.12	-0.17	247 185	9 155	2.80	3.85
APPLIED TO:								
Net capital purchases	73 359	2 717	0.80	1.13	45 765	1 695	0.52	0.71
Development	45 603	1 689	0.50	0.70	64 260	2 380	0.73	1.00
Drawings	59 400	2 200	0.65	0.91	59 400	2 200	0.67	0.93
Principal repayments	35 532	1 316	0.39	0.55	15 174	562	0.17	0.24
New borrowings	46 413	1 719	0.51	0.71	10 341	383	0.12	0.16
Introduced funds	14 283	529	0.16	0.22	1 296	48	0.01	0.02
Cash surplus/deficit	-164 184	-6 081	-1.79	-2.53	74 223	2 749	0.84	1.16
Orchard surplus for reinvestment²	-77 244	-2 861	-0.84	-1.19	181 332	6 716	2.06	2.83
ASSETS AND LIABILITIES								
Land and building (opening)	2 511 000	93 000	27.44	38.67	2 538 000	94 000	28.79	39.57
Plant and machinery (opening)	216 000	8 000	2.36	3.33	243 000	9 000	2.76	3.79
Orchard related investments	81 000	3 000	0.89	1.25	108 000	4 000	1.23	1.68
Total orchard assets (opening)	2 808 000	104 000	30.69	43.24	2 889 000	107 000	32.77	45.05
Total orchard liabilities (opening)	945 000	35 000	10.33	14.55	891 000	33 000	10.11	13.89
Total equity	1 863 000	69 000	20.36	28.69	1 998 000	74 000	22.66	31.15

Notes

1 Tray carton equivalent.

2 Orchard surplus for reinvestment is calculated as follows: discretionary cash less off-orchard income and drawings.

»» TABLE 6.11: NELSON PIPFRUIT MODEL ORCHARD EXPENDITURE

	2007				2008 FORECAST			
	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE ¹ GROSS (\$)	PER TCE EXPORT (\$)	WHOLE ORCHARD (\$)	PER PLANTED HA (\$)	PER TCE GROSS (\$)	PER TCE EXPORT (\$)
ORCHARD WORKING EXPENSES								
Hand harvesting	165 605	6 134	1.81	2.55	167 503	6 204	1.90	2.61
Pruning	58 509	2 167	0.64	0.90	49 707	1 841	0.56	0.78
Thinning	55 134	2 042	0.60	0.85	54 486	2 018	0.62	0.85
Other wages	86 616	3 208	0.95	1.33	73 467	2 721	0.83	1.15
ACC – employees	5 319	197	0.06	0.08	5 373	199	0.06	0.08
Total labour expenses	371 183	13 748	4.06	5.72	350 536	12 983	3.98	5.47
Packing	242 864	8 995	2.65	3.74	236 656	8 765	2.68	3.69
Packaging	227 279	8 418	2.48	3.50	225 753	8 361	2.56	3.52
Cool storage	107 146	3 968	1.17	1.65	107 746	3 991	1.22	1.68
Freight	15 554	576	0.17	0.24	15 869	588	0.18	0.25
Total post-harvest expenses	592 843	21 957	6.48	9.13	586 024	21 705	6.65	9.14
Weed and pest control	86 643	3 209	0.95	1.33	77 193	2 859	0.88	1.20
Pollination	4 509	167	0.05	0.07	4 185	155	0.05	0.07
Fertiliser and lime	10 746	398	0.12	0.17	9 963	369	0.11	0.16
Electricity	7 560	280	0.08	0.12	7 884	292	0.09	0.12
Vehicle	20 439	757	0.22	0.31	16 497	611	0.19	0.26
Fuel	16 740	620	0.18	0.26	13 500	500	0.15	0.21
Repairs and maintenance	30 645	1 135	0.33	0.47	28 458	1 054	0.32	0.44
General	13 959	517	0.15	0.21	13 608	504	0.15	0.21
Contract machine work	3 807	141	0.04	0.06	3 564	132	0.04	0.06
Total other working expenses	195 048	7 224	2.13	3.00	174 852	6 476	1.98	2.73
Rates	10 260	380	0.11	0.16	9 369	347	0.11	0.15
General insurance	9 072	336	0.10	0.14	9 018	334	0.10	0.14
Crop insurance	11 286	418	0.12	0.17	12 258	454	0.14	0.19
ACC – owners	1 674	62	0.02	0.03	1 053	39	0.01	0.02
Communication	6 858	254	0.07	0.11	6 075	225	0.07	0.09
Accounting	3 996	148	0.04	0.06	3 537	131	0.04	0.06
Legal and consultancy	6 858	254	0.07	0.11	5 778	214	0.07	0.09
Levies and subscriptions	7 143	265	0.08	0.11	7 055	261	0.08	0.11
Other administration	11 313	419	0.12	0.17	9 639	357	0.11	0.15
Total overhead expenses	68 460	2 536	0.75	1.05	63 782	2 362	0.72	0.99
Total orchard working expenses	1 227 533	45 464	13.42	18.90	1 175 193	43 526	13.33	18.32
Wages of management	59 080	2 188	0.65	0.91	59 890	2 218	0.68	0.93
Depreciation	30 969	1 147	0.34	0.48	31 914	1 182	0.36	0.50
Total orchard operating expenses	1 317 582	48 799	14.40	20.29	1 266 997	46 926	14.37	19.75
CALCULATED RATIOS								
Economic orchard surplus (EOS) ²	-12 583	-466	-0.14	-0.19	249 125	9 227	2.83	3.88
Orchard working expenses/NCI ³	94%				78%			
EOS/Total orchard assets	-0.4%				8.6%			
EOS less interest and lease/equity	-5.8%				7.5%			
Interest + rent + lease/NCI	7.3%				6.6%			
EOS/NCI	-1.0%				6.4%			

Notes

1 Tray carton equivalent.

2 EOS (or earnings before interest and tax) is calculated as follows: net cash income less orchard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total orchard assets to a maximum of \$75 000.

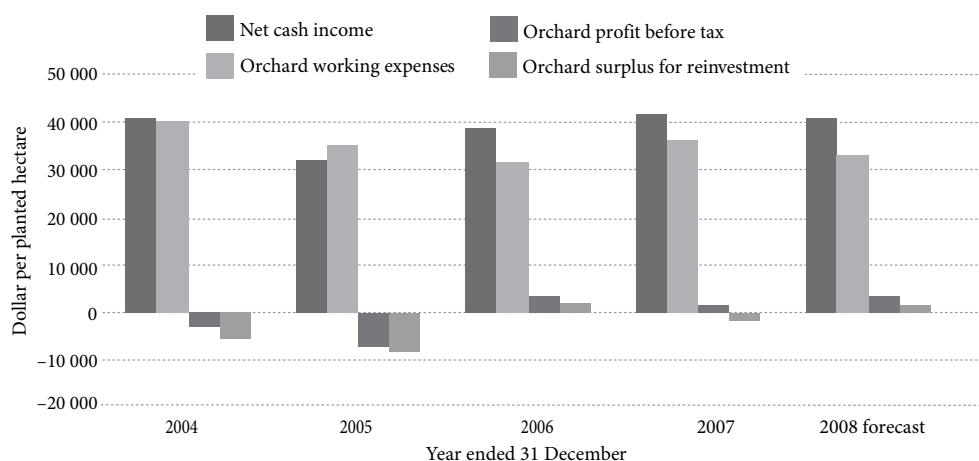
3 Net cash income.

»» IMPLICATIONS AND ANALYSIS

» PROFITABILITY TRENDS

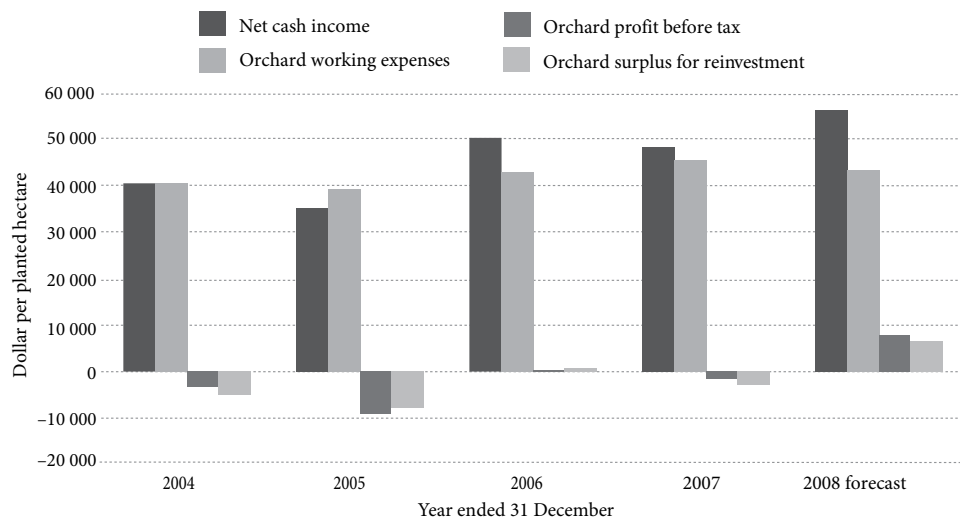
The Hawkes Bay and Nelson pipfruit orchard models demonstrate a recovery from the substantial trading losses of 2004 and 2005, although profit levels are modest (Figures 6.1 and 6.2). Large price variability from year to year, both from market and exchange rate influences, makes it difficult for growers to manage cash flow and make investment decisions. However, growers are aware that orchard redevelopment into new, higher-paying varieties, and intensive planting systems is the key to long-term profitability.

»» FIGURE 6.1: HAWKES BAY PIPFRUIT MODEL PROFITABILITY TRENDS



Source
MAF Monitoring Reports; 2004 to 2008.

»» FIGURE 6.2: NELSON PIPFRUIT MODEL PROFITABILITY TRENDS



Source
MAF Monitoring Reports; 2004 to 2008.

Changes in the variety mix of the model orchards since 2004 reflect growers' efforts to reduce their reliance on the poor-performing commodity varieties of Braeburn and Royal Gala (Table 6.12).

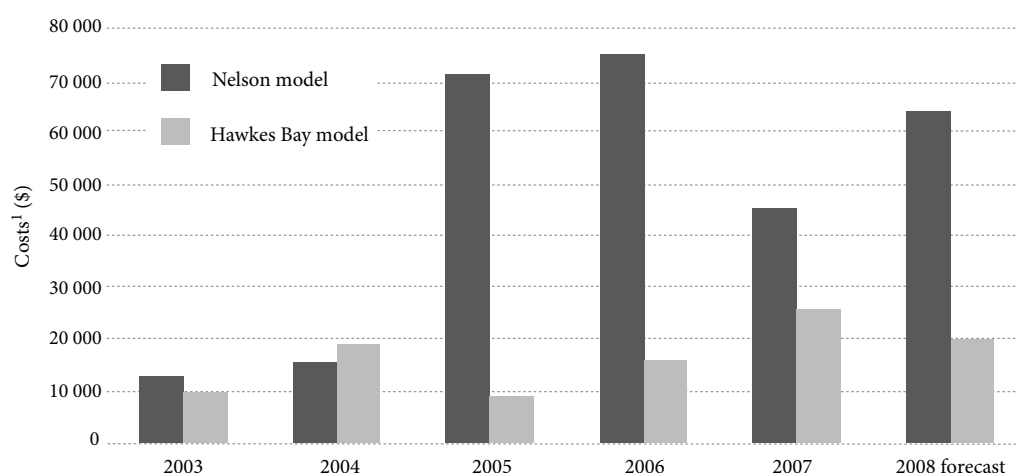
TABLE 6.12: CHANGES IN VARIETY MIX (% PLANTED AREA) OF HAWKES BAY AND NELSON PIPFRUIT MODELS, 2004 AND 2008

	HAWKES BAY		NELSON	
	2004	2008	2004	2008
Braeburn (%)	28	20	39	36
Royal Gala (%)	35	31	33	26

Source
MAF Monitoring Reports; 2004 and 2008.

Growers in the Nelson region are more exposed to the vagaries of Braeburn and Royal Gala than their counterparts in Hawkes Bay. Hence, impetus for orchard redevelopment has been greater in Nelson, with expenditure in the model orchard ranging from \$45 000 to \$75 000 per year since 2005 (Figure 6.3). Development expenditure in the Hawkes Bay model, which produces a significant proportion of fruit for the domestic market, has lagged behind with an annual average spend of \$18 000 over the past four years. However, orchard redevelopment is gathering pace in the region. Growers on the Hawkes Bay monitoring panel redeveloped around 8 percent of their orchard area on average in winter 2007, up from 7 percent in winter 2006. New plantings are primarily of club varieties such

FIGURE 6.3: ANNUAL INVESTMENT IN ORCHARD DEVELOPMENT, 2003–2008



Note
1 Costs are expressed in nominal terms.

Source
MAF Monitoring Reports; 2003 to 2008.

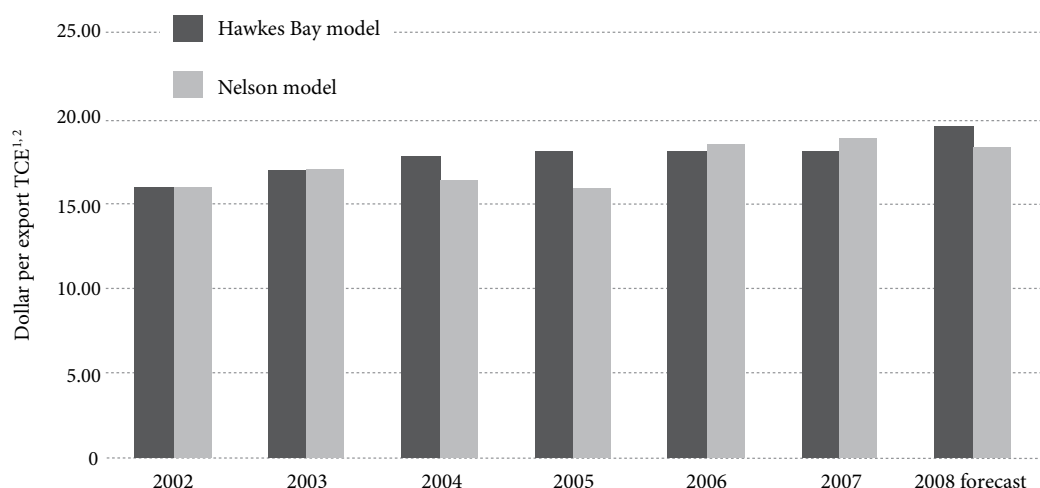
as Jazz™, Envy™, Tentation™, Lady in Red™ and high-coloured Fuji sports. Growers in Hawkes Bay are also planting existing varieties such as Pacific Queen™ in intensive production systems.

With the orchard business generating little funds for reinvestment (Figures 6.1 and 6.2), owner-operators are financing orchard redevelopment mainly from introduced funds, new borrowing and off-orchard income. Growers have taken advantage of high equity levels to finance redevelopment but high interest rates mean the cost of borrowing is beginning to have a significant impact on cash flow, taking 6 percent of net cash income in 2007. Other orchard income and off-orchard funds will have to be relied on in the short term until the newly planted, more profitable varieties come into full production.

► TRENDS IN COSTS

Orchard working expenses³ have trended upwards in recent years in both the Hawkes Bay and Nelson model orchards. Orchard working expenses per export carton increased from an average of \$16.00 in 2002 to about \$18.10 to \$18.90 in 2007 (Figure 6.4). A significant increase to \$19.64 per export carton is forecast for the Hawkes Bay model orchard in 2008 due to rising costs and a reduced crop.

►► FIGURE 6.4: ORCHARD WORKING EXPENSES, 2002–2008



Notes

1 Tray carton equivalent.

2 Costs are expressed in nominal terms.

Source

MAF Monitoring Reports; 2002 to 2008.

3 Orchard working expenses for the pipfruit models equate to free alongside ship (FAS) costs.

Post-harvest costs are the single largest cost for growers, at 50 percent of orchard working expenses. Average costs per export carton increased by \$1.00 in nominal terms between 2002 and 2008, with packout rates averaging 70 percent. An increase in the provision of post-harvest facilities in the Hawkes Bay region offered some price competition in 2006 but the benefits have since been eroded by post-harvest operators passing on increases in the costs of labour, fuel and electricity. Growers are increasingly mindful of the need to lift packout rates to reduce unit post-harvest costs.

Labour costs are the second largest cost on orchards, increasing from 27 to 29 percent of total orchard expenses between 2002 and 2008 for the Hawkes Bay model. Hand-harvesting costs increased by 50 cents per gross carton over this seven-year period. Growers report that the main drivers for the increase in unit labour costs are the increase in the minimum wage rate and the competition for labour in a tight labour market. The pipfruit industry hopes that investing in training and being able to access a consistent pool of seasonal labour via the Recognised Seasonal Employer scheme will improve productivity and offset the rising costs of labour. Timely, high-quality labour inputs are critical to lift packout rates and produce fruit of optimal size and quality.

Administration and overhead costs have remained relatively static in recent years, ranging from 6.0 to 6.5 percent of total orchard working expenses.

Orchard working expenses reflect the direct costs of production and overheads. However, pipfruit businesses must also cover further costs, including lease and rent costs, debt servicing and wages of management (or drawings). To be economically sustainable, businesses must be able to generate enough income for orchard redevelopment and the purchase of new and replacement plant and machinery. Thus, total orchard operating costs could be calculated as orchard working expenses plus interest, lease costs, depreciation and wages of management. This cost calculation provides an assessment of the total costs of production, and can act as a guide to growers and exporters of the market returns required to maintain business viability.

Analysis of the data from the Hawkes Bay and Nelson model orchards shows that total orchard operating costs have generally risen in line with orchard working expenses, averaging \$21.30 per export carton between 2005 and 2007 (Table 6.13). While total operating costs are expected to remain stable in the Nelson model in 2008, a dramatic 10 percent increase is forecast for the Hawkes Bay model, rising to \$23.48 per export carton. Rising costs and a reduced crop have contributed to this increase.

While growers strive to achieve cost efficiencies where possible, greater profitability is more likely to be achieved by enhancing revenue through the right variety mix and producing high-quality fruit for targeted markets.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» GROWER MORALE AND BUSINESS VIABILITY PLANS

Grower morale in the pipfruit industry varies: some growers are optimistic about the future while others are struggling to maintain viability and questioning their business future. Although most see orchard redevelopment into new varieties and intensive plantings as the way ahead, the current financial circumstances mean that extensive redevelopment is not a short-term option. Large cash losses in 2005 and again in 2007 have been disheartening and preclude further investment without taking on significant new debt.

With interest rates at high current levels and the high costs of intensive planting systems, growers forecast that the financial position will get much worse before it gets better. The high cost of land in New Zealand is a further barrier to development and orchard expansion. Growers and industry representatives view long-term lease options as the most likely way forward for industry expansion but acknowledge the difficulties in raising funds to develop leased land.

Some growers are investing in other crops, including pears and grapes, to supplement income from apples. Growers who have already invested significantly in redevelopment, particularly in controlled or club varieties, are more optimistic about the future than those who currently rely heavily on Braeburn and Royal Gala. They are naturally keen to see these controlled varieties retain their market premium for a number of years into the future.

» GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Pipfruit growers have responded to the rising cost of inputs by “tightening their belts” where possible, but they generally feel there is no option but to wear the increases.

In particular, the rising costs of fuel, electricity and labour are having a significant impact both directly and indirectly (through post-harvest charges). Growers are making some changes, such as monitoring soil moisture levels to eliminate excess power usage by over-irrigating, and other innovative practices where possible. However, most growers comment that the savings are not significant and rising costs are eroding profitability on top of an already tight situation.

Collecting fruit thinnings to sell as acid juice is a novel method Hawkes Bay growers are using to subsidise hand-thinning costs.

The cost of labour is another expense that growers indicated is difficult to control. While the Recognised Seasonal Employer scheme has successfully provided a consistent pool of seasonal



»»» TABLE 6.13: TOTAL ORCHARD OPERATING EXPENSES, 2002–2008¹

	2002	2003	2004	2005	2006	2007	2008 FORECAST
HAWKES BAY MODEL							
Total orchard operating expenses (\$/TCE ² export)	18.62	19.83	20.63	21.66	21.63	21.38	23.48
NELSON MODEL							
Total orchard operating expenses (\$/TCE export)	19.06	20.00	18.90	18.75	22.57	21.76	21.31

Notes

1 Costs are expressed in nominal terms.

2 Tray carton equivalent.

Source

MAF Monitoring Reports; 2002 to 2008.

labour for the 2008 harvest, the scheme is still in its infancy and productivity improvements that will offset the increased costs have yet to be realised. There is also potential for productivity gains in labour using intensive dwarfing orchard systems and working platforms, although these are seen as long-term adjustments.

» ENVIRONMENTAL AND RESOURCE MANAGEMENT

Growers are much more aware of environmental management issues than in the past, with most making efforts to manage natural resources in a sustainable manner. This includes undertaking appropriate chemical disposal, developing riparian strips and native tree plantings, recycling waste, monitoring irrigation inputs and soil moisture levels, and managing spray drift.

Pipfruit growers have embraced the development of production systems offering “nil discernible residues”, with good participation in the associated research and development programme, the Apple Futures Project. Further information on the Apple Futures Project can be found at <http://www.pipfruitnz.co.nz>.

» EXCHANGE RATE

Growers say the high New Zealand dollar is the main issue for the industry at present. Many view it as the main cause of uneconomic returns, and are keen to see the dollar decline to somewhere near its 10-year average in order to make the industry more sustainable. Growers realise that a significant depreciation of the New Zealand dollar would affect shipping costs and the cost of inputs such as fuel. However, these cost increases would be relatively small compared with the better export returns likely to be achieved for the export crop.

VITICULTURE

7

»» KEY POINTS

- › Marlborough Sauvignon Blanc continues to captivate international markets, which ensured yet another profitable result for Marlborough growers. The Hawkes Bay vineyard is more challenged in its underlying profitability and, through strategic changes to its grape variety mix, is seeking incremental improvements.
- › The Marlborough vineyard achieved a remarkable 37 percent increase in yield per hectare for 2007/08 after an excellent growing season. In contrast, the Hawkes Bay vineyard recorded a significant drop in yield, due mainly to widespread frosts in October 2007.
- › The Marlborough vineyard's net cash income for 2007/08 rose 54 percent on the back of a substantial jump in yields, a lift in price paid per tonne for Sauvignon Blanc and a small expansion in the vineyard's producing area. The Hawkes Bay vineyard's revenue dropped as a direct result of tonnage being down due to frosts.
- › Vineyard working expenses increased by 29 percent on a producing hectare basis in 2007/08 on the Marlborough vineyard and by 13 percent on the Hawkes Bay vineyard. The main cost increases were in labour, weed and pest control, and those costs linked directly or indirectly to fuel and electricity, such as contract machine work, frost protection and irrigation control. Growers are forecasting further cost increases in 2008/09, although they will try to control some costs by limiting expenditure on repairs and maintenance.

»» TABLE 7.1: KEY PARAMETERS, FINANCIAL RESULTS AND FORECASTS FOR THE VITICULTURE MODELS

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
MARLBOROUGH MODEL					
Planted area (ha)	29.0	29.0	29.0	29.0	31.0
Producing area ¹ (ha)	23.0	23.0	25.0	27.0	29.0
Total production ² (t)	177	235	248	368	333
Average return (\$/t)	2 183	2 252	2 311	2 445	2 319
Net cash income (\$)	402 638	536 728	587 261	907 273	780 084
Vineyard working expenses (\$)	213 716	175 952	207 925	288 576	290 725
Vineyard profit before tax (\$)	113 160	224 841	267 811	404 155	251 443
Vineyard surplus for reinvestment ³ (\$)	65 734	164 991	186 461	334 690	228 295
HAWKES BAY MODEL					
Planted area (ha)	10.0	10.0	10.0	10.0	10.0
Producing area ⁴ (ha)	9.7	9.7	9.6	9.6	8.8
Total production (t)	78	80	93	66	73
Average return (\$/t)	1 596	1 569	1 625	1 750	1 720
Net cash income (\$)	130 358	126 139	152 055	115 445	124 903
Vineyard working expenses (\$)	80 432	84 040	80 333	90 734	89 298
Vineyard profit before tax (\$)	26 384	5 969	36 596	-16 374	-18 890
Vineyard surplus for reinvestment (\$)	14 909	-19 391	13 892	-39 534	-24 965

Notes

1 Marlborough's producing area increases to 29 hectares in 2008/09 reflecting additional plantings of Sauvignon Blanc, Pinot Noir Table, Pinot Gris and Gewurztraminer.

2 Grapes are harvested in the autumn so the 2007/08 year refers to fruit harvested in autumn 2008.

3 Vineyard surplus for reinvestment is the cash available from the vineyard business, after meeting living costs, which is available for investment on the vineyard or for principal repayments. It is calculated as discretionary cash less off-vineyard income and drawings.

4 The producing area for the Hawkes Bay vineyard drops 0.8 hectares in 2008/09 to accommodate new plantings of Sauvignon Blanc and Pinot Gris.

»» FINANCIAL PERFORMANCE OF THE MARLBOROUGH MODEL VINEYARD IN 2007/08

The Marlborough model vineyard achieved a profit before tax of \$404 155, up by about \$136 000 on the previous year. This result reflects significantly higher yields and a slight increase in average prices paid per tonne. The model vineyard's producing area increased by two hectares for the 2007/08 year to 27 hectares.

See Tables 7.3 and 7.4 for details of the model vineyard's income and expenditure in 2007/08. See Tables 7.5 and 7.6 for further details of production and income variables for the Marlborough model vineyard in 2007/08 and 2008/09.

» REVENUE UP SIGNIFICANTLY

In 2007/08, net cash income rose 54 percent compared with the previous year, due mainly to large increases in yield per hectare but also because the model vineyard's producing area increased by two hectares and the average price per tonne increased by 6 percent.

PRICES REMAIN STRONG

Table 7.2 presents average prices that model growers received for their grapes for the period 2004/05 to 2007/08 and the growers' forecasts for 2008/09. Almost all varieties showed increases in prices paid per tonne in 2007/08 compared with the previous year. The weighted average price per tonne across all varieties was \$2445.

In winter 2007, growers expected a marginal decline in prices for Sauvignon Blanc for the 2008 vintage, believing that contract supply was reaching demand. However, early crop estimates in November 2007, completed by both wineries and growers, indicated only a small increase in crop. This led to competition between wineries for the expected crop and pushed Sauvignon Blanc prices for 2008 up 3 percent to \$2435 per tonne.

Pinot Noir prices remained strong in 2007/08, up 8 percent on 2006/07, as demand for this variety continues to increase. The "other white" variety classification includes Pinot Gris and Gewurztraminer, and their prices increased marginally compared with 2006/07.

YIELDS EXCEED EARLY ESTIMATES FOR 2008 VINTAGE

Total production in 2007/08 for the Marlborough model vineyard increased to 368 tonnes, up substantially on the previous season. The main reason for the increase was an unexpected rise in yields achieved per hectare. The model vineyard's producing area also increased. Average yields rose 37 percent on the previous season, from 9.9 to 13.6 tonnes per hectare, and Sauvignon Blanc increased from 9.8 to 14.4 tonnes per hectare.



»» TABLE 7.2: MARLBOROUGH AVERAGE GRAPE PRICES

YEAR ENDED 30 JUNE	2004/05 (\$/t)	2005/06 (\$/t)	2006/07 (\$/t)	2007/08 (\$/t)	2008/09 FORECAST (\$/t)
Sauvignon Blanc	2 247	2 355	2 355	2 435	2 288
Pinot Noir – table	3 261	2 751 ¹	3 037	3 277	3 166
Other white – Pinot Gris and Gewurztraminer	2 129	2 311	2 649	2 700	2 585
Chardonnay – Mendoza and clone 15	1 947	1 976	2 069	2 133	2 125
Chardonnay – all other clones	1 770	1 961	2 057	2 146	2 050
Riesling	1 758	1 930	1 892	1 830	1 934
Pinot Noir – sparkling	1 129	1 100	1 226	1 800	1 800
Weighted average	2 183	2 252	2 311	2 445	2 319

Note

¹ The Pinot Noir – table price per tonne for 2005/06 of \$2751 is based on the 2006 vintage price for Marlborough quoted in New Zealand Winegrowers' *Statistical Annual 2006*. This is because an erroneous figure of \$1965 was used in the *MAF Horticulture Monitoring Report 2006*.

Source

MAF Monitoring Reports; 2005 to 2008.

The yield increase in 2007/08 reflects an excellent growing season. Details of climatic conditions for the Marlborough region are included in Appendix 3. Rain fell prior to flowering and was followed by warm, dry conditions over the flowering period, along with above-average growing degree days¹, especially in January. This ensured good fruit set and excellent berry cell division, which resulted in increased berries per bunch and increased berry size. Regular rain late in the season also helped growers achieve large berries.

Frost had only a very minor effect on production in Marlborough in 2007/08 (one frost in mid-October reduced crops on a few vineyards). Most growers in areas that are considered susceptible to frost have invested in either wind machines or overhead irrigation.

Rainfall in late March and April caused significant harvest problems for some growers and wineries. The industry estimates that between 50 and 60 percent of the season's crop had been harvested before 26 millimetres of rain fell in late March. Further rainfall in April (113 millimetres) increased fears of *Botrytis* disease and growers were pressured to harvest fruit. This, combined with the very large increase in the expected crop, caused significant logistical problems for growers and wineries still harvesting in April.

Growers reported delays in harvest due to a limited supply of bins, labour and/or machine harvesters. Wineries were forced to operate at or above capacity to process fruit but also found it difficult to keep pace with the harvest. A small amount of late-season fruit did not get harvested or received lower prices due to reduced brix² and diminished fruit quality caused by *Botrytis*, or where growers had exceeded contracted yields.

¹ Growing degree days are calculated by taking the average of the daily high and low temperatures each day compared with a baseline (usually 10 degrees centigrade). They help to predict the date that a flower will bloom or a crop reach maturity.

² Brix is a measure of sugar levels and an indicator of the quality of the grapes for winemaking.

➤ EXPENDITURE IN 2007/08 TRENDING UPWARDS

Vineyard working expenses per producing hectare reached \$10 688 in 2007/08, up 29 percent on 2006/07. Higher labour costs, especially for pruning, and generally higher input prices were the main causes for the increase in working expenses. Pruning costs in the model vineyard at \$1.32 per vine are at the lower end of average contract rates for pruning in winter 2007.³ However, it must be noted that the model reflects approximately 25 percent of growers who employ their own pruning staff or owners who help prune.

Growers experienced increases across most other working expenses but especially chemical inputs, electricity (from increased irrigation), fuel and machine harvesting. Repairs and maintenance was also significantly higher in 2007/08, as growers used some of the previous year's surplus to complete delayed work.

The main reason for the rise in depreciation values between 2006/07 and 2007/08 is the inclusion of depreciation related to buildings in addition to plant and machinery.

A number of the growers surveyed increased their level of development and capital purchases in 2007/08. This vineyard investment included new machinery, frost protection, new plantings and infrastructure such as dam construction. Growers are aware that water is fast becoming a scarce resource and see investment in dams as a form of insurance. Growers are also investing in more energy-efficient machinery, such as low horsepower tractors and multiple-task implements. Investment is being funded out of the vineyard surplus and new borrowing.

Taxation for the model vineyard increased to \$90 423, up from \$29 450 in 2006/07 due to the significant lift in income.

Principal repayments continued at similar levels to 2006/07, as growers chose to invest surplus funds off-vineyard. Total debt at around \$1 million represents just 11 percent of total vineyard capital. However, the model vineyard represents a predominately mature and established vineyard. Banks report that a large number of new vineyards being developed in the Marlborough region, particularly in outlying areas, are carrying a higher proportion of debt than the model vineyard.

³ Contract rates of \$1.60 to \$1.70 per vine for pruning mature Sauvignon Blanc were suggested as typical at the industry meeting, with up to \$2.00 for old and gnarly vines.

»» FORECAST FINANCIAL PERFORMANCE OF THE MARLBOROUGH MODEL VINEYARD IN 2008/09

The vineyard's net cash income is forecast to decline by 14 percent in 2008/09 and vineyard expenditure is expected to remain steady. As a consequence, vineyard profit before tax is predicted to drop to around \$251 443 from \$404 155 in 2007/08.

» REVENUE FORECAST TO BE DOWN ON THE PREVIOUS SEASON

The model vineyard is forecasting a decline in vineyard revenue of \$127 189 for the 2008/09 year, despite a further increase in producing area. The drop in revenue is due primarily to a decrease in expected production per hectare. Growers in the survey group forecast Sauvignon Blanc to average 12.1 tonnes per hectare for the 2009 vintage, down from 14.4 tonnes per hectare in 2007/08.

With new plantings coming into production, some industry commentators are predicting that the 2008/09 yield profile for the Marlborough region could match or exceed the levels reached in 2007/08, depending on the weather, and crop management practices in the period up to harvest. Modelling work undertaken at the Marlborough Wine Research Centre indicates that very favourable temperature conditions existed in late 2007 for the initiation of flowers for the 2009 vintage. As a result, flowering could be up to 30 percent above average in 2008/09, with consequent increases in yield. New Zealand Winegrowers, the national body representing the interests of the New Zealand wine industry, is urging wineries to discuss their market requirements for vintage 2009 with their contract growers. Growers are being advised to manage their yield to align with contract expectations.

PRICES EXPECTED TO TAPER OFF

Growers expect a general decrease in prices paid per tonne in 2008/09 but still expect an average price of \$2319, similar to that achieved in 2006/07.

» EXPENDITURE FORECAST TO REMAIN STEADY IN 2008/09

Growers are forecasting lower inputs in 2008/09 and so the model vineyard's working expenditure is forecast to increase only marginally in 2008/09, despite the producing area increasing by two hectares.

Labour rates are forecast to remain similar to 2007/08, with a slight increase in pruning costs. Growers are forecasting a reduced use of fertiliser and electricity (reduced irrigation), and reduced repairs and maintenance, frost protection and contract machinery work.

Growers are concerned about the effect of the high returns in 2007/08 on terminal and provisional tax payments, and are looking at methods such as income equalisation and provisional tax estimation to manage tax liability in 2008/09.

Growers hope that interest rates will decrease in 2008/09 and expect to make greater principal repayments.

»»» TABLE 7.3: MARLBOROUGH VITICULTURE MODEL BUDGET

	2007/08				2008/09 FORECAST			
	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)
REVENUE								
Income from grapes	900 415	33 349	2 445	16.65	773 066	26 657	2 319	13.31
Other vineyard income	6 858	254	19	0.13	7 018	242	21	0.12
Net cash income	907 273	33 603	2 463	16.78	780 084	26 899	2 340	13.43
Vineyard working expenses	288 576	10 688	784	5.34	290 725	10 025	872	5.00
Cash operating surplus	618 697	22 915	1 680	11.44	489 359	16 874	1 468	8.42
Interest	93 528	3 464	254	1.73	85 608	2 952	257	1.47
Rent and/or leases	25 056	928	68	0.46	30 305	1 045	91	0.52
Depreciation	95 958	3 554	261	1.77	122 003	4 207	366	2.10
Net non fruit cash income	0	0	0	0.00	0	0	0	0.00
Vineyard profit before tax	404 155	14 969	1 097	7.47	251 443	8 670	754	4.33
Tax	90 423	3 349	246	1.67	70 151	2 419	210	1.21
Vineyard profit after tax	313 732	11 620	852	5.80	181 292	6 251	544	3.12
Add back depreciation	95 958	3 554	261	1.77	122 003	4 207	366	2.10
Off-vineyard cash income	10 422	386	28	0.19	10 614	366	32	0.18
Discretionary cash	420 112	15 560	1 141	7.77	313 909	10 824	942	5.40
APPLIED TO:								
Net capital purchases	113 832	4 216	309	2.10	42 717	1 473	128	0.74
Development	121 851	4 513	331	2.25	53 795	1 855	161	0.93
Drawings	75 000	2 778	204	1.39	75 000	2 586	225	1.29
Principal repayments	33 534	1 242	91	0.62	84 651	2 919	254	1.46
New borrowings	217 674	8 062	591	4.02	0	0	0	0.00
Introduced funds	0	0	0	0.00	0	0	0	0.00
Cash surplus/deficit	293 569	10 873	797	5.43	57 746	1 991	173	0.99
Vineyard surplus for reinvestment¹	334 690	12 396	909	6.19	228 295	7 872	685	3.93
ASSETS AND LIABILITIES								
Land and building (opening)	8 725 968	323 184	23 693	161.35	8 726 187	300 903	26 181	150.23
Plant and machinery (opening)	259 065	9 595	703	4.79	202 971	6 999	609	3.49
Vineyard related investments (opening)	88 479	3 277	240	1.64	96 657	3 333	290	1.66
Total vineyard assets (opening)	9 073 512	336 056	24 636	167.78	9 025 815	311 235	27 080	155.38
Total vineyard liabilities (opening)	1 007 586	37 318	2 736	18.63	1 022 453	35 257	3 068	17.60
Total equity	8 065 926	298 738	21 900	149.15	8 003 362	275 978	24 012	137.78

Note

¹ Vineyard surplus for reinvestment is calculated as follows: discretionary cash less off-vineyard income and drawings.

»» TABLE 7.4: MARLBOROUGH VITICULTURE MODEL EXPENDITURE

	2007/08				2008/09 FORECAST			
	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)
VINEYARD WORKING EXPENSES								
Hand harvesting	6 075	225	16	0.11	5 046	174	15	0.09
Pruning (and tying down)	71 172	2 636	193	1.32	78 880	2 720	237	1.36
Crop load management	33 237	1 231	90	0.61	32 277	1 113	97	0.56
Other wages	27 378	1 014	74	0.51	28 681	989	86	0.49
ACC – employees	1 188	44	3	0.02	1 247	43	4	0.02
Total labour expenses	139 050	5 150	378	2.57	146 131	5 039	438	2.52
Weed and pest control	24 705	915	67	0.46	27 405	945	82	0.47
Fertiliser and lime	8 046	298	22	0.15	7 337	253	22	0.13
Electricity	4 779	177	13	0.09	4 147	143	12	0.07
Vehicle	5 913	219	16	0.11	7 424	256	22	0.13
Fuel	7 911	293	21	0.15	8 990	310	27	0.15
Repairs and maintenance	20 601	763	56	0.38	12 760	440	38	0.22
General	5 481	203	15	0.10	5 162	178	15	0.09
Frost protection	8 586	318	23	0.16	6 525	225	20	0.11
Contract machinery work	7 803	289	21	0.14	7 598	262	23	0.13
Machine harvesting	16 065	595	44	0.30	17 748	612	53	0.31
Total other working expenses	109 890	4 070	298	2.03	105 096	3 624	315	1.81
Rates	11 151	413	30	0.21	11 310	390	34	0.19
Water rates	2 106	78	6	0.04	2 262	78	7	0.04
General insurance	4 023	149	11	0.07	3 915	135	12	0.07
ACC – owners	3 213	119	9	0.06	3 509	121	11	0.06
Communication	3 618	134	10	0.07	3 683	127	11	0.06
Accountancy	4 482	166	12	0.08	4 118	142	12	0.07
Legal and consulting	1 620	60	4	0.03	1 334	46	4	0.02
Levies and subscriptions	6 615	245	18	0.12	5 742	198	17	0.10
Other administration	2 808	104	8	0.05	3 625	125	11	0.06
Total overhead expenses	39 636	1 468	108	0.73	39 498	1 362	119	0.68
Total vineyard working expenses	288 576	10 688	784	5.34	290 725	10 025	872	5.00
Wages of management	75 000	2 778	204	1.39	75 000	2 586	225	1.29
Depreciation	95 958	3 554	261	1.77	122 003	4 207	366	2.10
Total vineyard operating expenses	459 534	17 020	1 248	8.50	487 728	16 818	1 463	8.40
CALCULATED RATIOS								
Economic vineyard surplus (EVS) ¹	447 739	16 583	1 216	8.28	292 356	10 081	877	5.03
Vineyard working expenses/NCI ²	32%				37%			
EVS/Total vineyard assets	4.9%				3.2%			
EVS less interest and lease/equity	4.1%				2.2%			
Interest + rent + lease/NCI	13.1%				14.9%			
EVS/NCI	49.3%				37.5%			

Notes

1 EVS (or earnings before interest and tax) is calculated as follows: net cash income less vineyard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total vineyard assets to a maximum of \$75 000.

2 Net cash income.

»» TABLE 7.5: MARLBOROUGH VINEYARD PRODUCTION AND INCOME DETAILS, 2007/08

	AREA (HA)	PRODUCTION PER HA (t/HA)	TOTAL PRODUCTION (t)	GROSS YIELD (%)	BRIX LEVEL (BRIX)	RETURN (\$/t)	REVENUE (\$)
YEAR ENDED 30 JUNE							
Sauvignon Blanc	19.0	14.4	273.6	74	21.6	2 435	666 216
Pinot Noir – table	2.5	9.4	23.5	6	23.5	3 277	77 010
Other White – Pinot Gris and Gewurztraminer	1.5	12.3	18.5	5	...	2 700	49 815
Chardonnay – Mendoza and Clone 15	1.5	12.3	18.5	5	23.2	2 133	39 354
Chardonnay – All other clones	1.2	14.0	16.8	5	22.6	2 146	36 053
Riesling	1.0	14.4	14.4	4	21.2	1 830	26 352
Pinot Noir – sparkling	0.3	10.4	3.1	1	19.5	1 800	5 616
Total/average	27.0	13.6	368.3	100	...	2 445	900 415

Symbol

... Not applicable.

»» TABLE 7.6: MARLBOROUGH VINEYARD FORECAST PRODUCTION AND INCOME DETAILS, 2008/09

	AREA (HA)	PRODUCTION PER HA (t/HA)	TOTAL PRODUCTION (t)	GROSS YIELD (%)	BRIX LEVEL (BRIX)	RETURN (\$/t)	REVENUE (\$)
YEAR ENDED 30 JUNE							
Sauvignon Blanc	20.5	12.1	248.1	74	21.8	2 288	567 538
Pinot Noir – table	2.8	7.7	21.6	6	23.7	3 166	68 259
Other white – Pinot Gris and Gewurztraminer	1.7	8.7	14.8	4	...	2 585	38 232
Chardonnay – Mendoza and clone 15	1.5	11.8	17.7	5	23.1	2 125	37 613
Chardonnay – all other clones	1.2	11.4	13.7	4	22.5	2 050	28 044
Riesling	1.0	14.3	14.3	4	21.5	1 934	27 656
Pinot Noir – sparkling	0.3	10.6	3.2	1	19.5	1 800	5 724
Total/average	29.0	11.5	333.3	100	...	2 319	773 066

Symbol

... Not applicable.

»» FINANCIAL PERFORMANCE OF THE HAWKES BAY MODEL VINEYARD IN 2007/08

The Hawkes Bay model vineyard achieved a net trading loss before tax of \$16 374, down from a taxable profit of \$36 596 in 2006/07. This result reflects significantly lower yields, primarily due to widespread frost. Despite this poor financial outcome, growers are relatively optimistic and are making changes to protect against frost and combat increasing operating costs.

See Tables 7.8 and 7.9 for details of the model vineyard's income and expenditure in 2007/08. See Tables 7.10 and 7.11 for further details of production and income variables for the Hawkes Bay model vineyard in 2007/08 and 2008/09.

» REVENUE DOWN SIGNIFICANTLY ON THE PREVIOUS SEASON

Revenue on the model vineyard in 2007/08 was down 24 percent compared with the previous year, due mainly to reduced production.

Table 7.7 presents the average prices the model growers received for their grapes for the period 2004/05 to 2007/08 and the growers' forecasts for 2008/09. Prices were forecast to decline in 2007/08 but, following a series of frosts in October 2007 and the forecast effect on yield, prices increased. Average prices per tonne were up on 2006/07, with Sauvignon Blanc and "Chardonnay – all other clones" experiencing the largest increase in price.

»» TABLE 7.7: HAWKES BAY AVERAGE GRAPE PRICES

YEAR ENDED 30 JUNE	2004/05 (\$/t)	2005/06 (\$/t)	2006/07 (\$/t)	2007/08 (\$/t)	2008/09 FORECAST (\$/t)
Merlot	1 826	1 694	1 852	1 800	1 800
Chardonnay – Mendoza and clone 15	1 674	1 683	1 693	1 750	1 750
Other red ¹	1 999	1 757	2 075	2 040	2 045
Sauvignon Blanc	1 498	1 672	1 660	1 800	1 775
Chardonnay – all other clones	1 348	1 544	1 362	1 700	1 700
Pinot Noir – sparkling	920	904	875	900	900
Pinot Gris	...	...	1 819	1 900	1 850
Syrah	...	2 132	2 240	2 250	2 250
Other white	1 022	1 064	1 075	1 530	1 550
Weighted average	1 596	1 569	1 625	1 749	1 720

Note

1 "Other red" includes Cabernet Sauvignon from 2007/08 onwards.

Symbol

... Not applicable.

Source

MAF Monitoring Reports; 2005 to 2008.

FROST LOWERS YIELD

Grape production for the model vineyard in 2007/08 dropped to 66 tonnes compared with the bumper yield of 93 tonnes the previous year. This 29 percent decrease in yield was due to three widespread frosts in the Hawkes Bay region during October 2007. New Zealand Winegrowers' records indicate a reduction of 18 percent in the 2008 vintage for the Hawkes Bay region. Details of climatic conditions for the Hawkes Bay region are included in Appendix 3.

The yield and quality of most grape varieties in the model vineyard were affected by the frosts. Brix, one measure of quality, was down across most varieties. Following a frost, a higher proportion of second set fruit occurs, which delays ripening and hence the potential for high Brix levels. Rain at harvest led to some of this later set fruit being harvested before optimal ripeness to reduce the likelihood of disease.

› EXPENDITURE UP IN 2007/08

The Hawkes Bay model vineyard's working expenses per producing hectare increased to \$9451 in 2007/08, up 13 percent from 2006/07. Higher labour costs and generally higher input prices were the main causes of this increase.

Growers experienced increases across most working expenses but especially weed and pest control, fuel, repairs and maintenance, frost protection and contract machinery work. Fuel increased 28 percent and repairs and maintenance 45 percent, while both frost protection and contract machinery work were up over 100 percent.

Weed and pest control, and fuel were up due to higher prices. Repairs and maintenance rose because growers completed deferred maintenance. Contract machinery work rose as growers tried to increase mechanisation in the vineyard to reduce the effects of higher labour costs and concerns about labour supply.

Taxation became a significant cost in 2007/08, as growers were faced with higher terminal and provisional tax payments based on the higher revenue from the 2006/07 crop.

››› FORECAST FINANCIAL PERFORMANCE OF THE HAWKES BAY MODEL VINEYARD IN 2008/09

The Hawkes Bay model vineyard is expected to undergo some significant changes in 2008/09. Despite a somewhat challenging 2007/08 season due to frost, growers know they need to make changes within their businesses to improve future profitability. The growers surveyed are altering their varietal mix and investing in further frost protection.

As such, the model will also undergo some redevelopment and increased capital spending. The model vineyard will reduce its planted area of Pinot Noir – sparkling, Cabernet Sauvignon and “other red” varieties and replant 0.8 hectares in Sauvignon Blanc and 0.2 hectares in Pinot Gris. In 2008/09, the producing area of the model vineyard will reduce to 8.8 hectares as this redevelopment occurs, with some recent plantings of Sauvignon Blanc coming into production.



Despite the redevelopment, an increase in cash operating surplus is forecast in 2008/09. Vineyard revenue is forecast to increase 8 percent compared with 2007/08, while growers expect working expenses to remain steady overall, due to the reduced producing area and the greater involvement of family members in pruning and canopy management.

➤ REVENUE INCREASE FORECAST FOR 2008/09

The growers surveyed are forecasting a return to average yields, with the risk of frost damage reduced due to investment in frost protection. Revenue for the vineyard model is forecast to increase by 8 percent compared with 2007/08, despite an 8 percent decrease in the producing area.

PRICES EXPECTED TO HOLD STEADY

Growers expect prices paid per tonne for the main varieties in 2008/09 to remain similar to 2007/08.

YIELDS EXPECTED TO REVERT TO NORMAL LEVELS

With the expectation of little or no frost damage, average yield per hectare for the model is forecast to increase 19 percent to 8.2 tonnes per hectare; total yield is expected to reach 73 tonnes. Yield predictions for Sauvignon Blanc are conservative at 8 tonnes per hectare, due to carry-over effects from the frost and the presence of young vines.

➤ EXPENDITURE FORECAST TO DECLINE IN 2008/09

The Hawkes Bay model vineyard's working expenses are forecast to remain steady overall in 2008/09. This is primarily due to the reduced producing area, as the model forecasts an increase in working expenses on a producing area basis.

Most growers were forecasting increased labour rates, but wages for the whole vineyard are forecast to decrease 2 percent as less pruning and canopy management is required on the newly planted vines. Some growers are also planning to keep costs down by using more family labour in winter pruning.

Growers are expecting increases in electricity (for the irrigation of young vines), fertiliser, fuel and frost protection.

Capital purchases are forecast to be \$50 000 in 2008/09, as growers invest in further frost protection. The redevelopment is forecast to cost \$15 000 and is expected to be done using a mixture of own-rooted cuttings and grafted vines. Some growers are using own-rooted cuttings rather than the more expensive grafted vines as they believe widespread Grapevine Leaf Roll virus in Hawkes Bay limits the life of grapevines. The serious downside to this option is the risk that plants on own roots will be more prone to phylloxera infection. Research is continuing on the development of effective and sustainable control strategies for mealy bug, the only known insect vector for Grapevine Leaf Roll virus.

Growers are expecting to fund the vineyard redevelopment and capital purchases using new borrowing and some introduced funds. Interest payments become a significant cost for the model vineyard in 2008/09, accounting for 25 percent of net cash income.

»»» TABLE 7.8: HAWKES BAY VITICULTURE MODEL BUDGET

	2007/08				2008/09 FORECAST			
	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)
REVENUE								
Income from grapes	115 445	12 026	1 749	5.21	124 903	14 194	1 720	5.64
Other vineyard income	0	0	0	0.00	0	0	0	0.00
Net cash income	115 445	12 026	1 749	5.21	124 903	14 194	1 720	5.64
Vineyard working expenses	90 734	9 451	1 375	4.10	89 298	10 148	1 230	4.03
Cash operating surplus	24 711	2 574	374	1.12	35 605	4 046	490	1.61
Interest	25 530	2 659	387	1.15	31 570	3 588	435	1.43
Rent and/or leases	0	0	0	0.00	0	0	0	0.00
Depreciation	16 555	1 724	251	0.75	23 925	2 719	330	1.08
Net non fruit cash income	1 000	104	15	0.05	1 000	114	14	0.05
Vineyard profit before tax	-16 374	-1 706	-248	-0.74	-18 890	-2 147	-260	-0.85
Tax	5 915	616	90	0.27	0	0	0	0.00
Vineyard profit after tax	-22 289	-2 322	-338	-1.01	-18 890	-2 147	-260	-0.85
Add back depreciation	16 555	1 724	251	0.75	23 925	2 719	330	10.80
Off-vineyard cash income	48 000	5 000	727	2.17	50 000	5 682	689	2.26
Discretionary cash	42 266	4 403	640	1.91	55 035	6 254	758	2.49
APPLIED TO:								
Net capital purchases	0	0	0	0.00	50 000	5 682	689	2.26
Development	0	0	0	0.00	15 000	1 705	207	0.68
Drawings	33 800	3 521	512	1.53	30 000	3 409	413	1.36
Principal repayments	0	0	0	0.00	0	0	0	0.00
New borrowings	0	0	0	0.00	50 000	5 682	689	2.26
Introduced funds	0	0	0	0.00	15 000	1 705	207	0.68
Cash surplus/deficit	8 466	882	128	0.38	25 035	2 845	345	1.13
Vineyard surplus for reinvestment¹	-39 534	-4 118	-599	-1.79	-24 965	-2 837	-344	-1.13
ASSETS AND LIABILITIES								
Land and building (opening)	1 645 000	171 354	24 924	74.30	1 645 000	186 932	22 658	74.30
Plant and machinery (opening)	85 435	8 899	1 294	3.86	122 620	13 934	1 689	5.54
Vineyard related investments (opening)	0	0	0	0.00	0	0	0	0.00
Total vineyard assets (opening)	1 730 435	180 254	26 219	78.16	1 767 620	200 866	24 347	79.84
Total vineyard liabilities (opening)	274 483	28 592	4 159	12.40	334 483	38 009	4 607	15.11
Total equity	1 455 952	151 662	22 060	65.76	1 433 137	162 856	19 740	64.73

Note

¹ Vineyard surplus for reinvestment is calculated as follows: discretionary cash less off-vineyard income and drawings.

»» TABLE 7.9: HAWKES BAY VITICULTURE MODEL EXPENDITURE

	2007/08				2008/09 FORECAST			
	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)	WHOLE VINEYARD (\$)	PER PRODUCING HA (\$)	PER TONNE GROSS (\$)	PER VINE (\$)
VINEYARD WORKING EXPENSES								
Hand harvesting	600	63	9	0.03	680	77	9	0.03
Pruning (and tying down)	13 800	1 438	209	0.62	12 400	1 409	171	0.56
Crop load management	9 500	990	144	0.43	9 200	1 045	127	0.42
Other wages	11 420	1 190	173	0.52	12 500	1 420	172	0.56
ACC – employees	196	20	3	0.01	189	21	3	0.01
Total labour expenses	35 516	3 700	538	1.60	34 969	3 974	482	1.58
Weed and pest control	9 640	1 004	146	0.44	9 300	1 057	128	0.42
Fertiliser and lime	1 080	113	16	0.05	1 150	131	16	0.05
Electricity	2 350	245	36	0.11	2 500	284	34	0.11
Vehicle	2 300	240	35	0.10	2 300	261	32	0.10
Fuel	3 500	365	53	0.16	4 200	477	58	0.19
Repairs and maintenance	7 400	771	112	0.33	6 100	693	84	0.28
General	2 000	208	30	0.09	2 000	227	28	0.09
Frost protection	2 060	215	31	0.09	2 310	263	32	0.10
Contract machinery work	2 900	302	44	0.13	2 900	330	40	0.03
Machine harvesting	7 150	745	108	0.32	7 050	801	97	0.32
Total other working expenses	40 380	4 206	612	1.82	39 810	4 524	548	1.80
Rates	3 080	321	47	0.14	3 250	369	45	0.15
General insurance	2 900	302	44	0.13	2 960	336	41	0.13
ACC – owners	1 518	158	23	0.07	1 539	175	21	0.07
Communication	1 800	188	27	0.08	1 850	210	25	0.08
Accountancy	2 800	292	42	0.13	2 200	250	30	0.10
Legal and consulting	280	29	4	0.01	260	30	4	0.01
Levies and subscriptions	960	100	15	0.04	960	109	13	0.04
Other administration	1 500	156	23	0.07	1 500	170	21	0.07
Total overhead expenses	14 838	1 546	225	0.67	14 519	1 650	200	0.66
Total vineyard working expenses	90 734	9 451	1 375	4.10	89 298	10 148	1 230	4.03
Wages of management	48 304	5 032	732	2.18	48 676	5 531	670	2.20
Depreciation	16 555	1 724	251	0.75	23 925	2 719	330	1.08
Total vineyard operating expenses	155 593	16 208	2 357	7.03	161 899	18 398	2 230	7.31
CALCULATED RATIOS								
Economic vineyard surplus (EVS) ¹	–40 148	–4 182	–608	–1.81	–36 996	–4 204	–510	–1.67
Vineyard working expenses/NCI ²	79%				72%			
EVS/Total vineyard assets	–2.3%				–2.1%			
EVS less interest and lease/equity	–4.5%				–4.8%			
Interest + rent + lease/NCI	22.1%				25.3%			
EVS/NCI	–34.8%				–29.6%			

Notes

1 EVS (or earnings before interest and tax) is calculated as follows: net cash income less vineyard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total vineyard assets to a maximum of \$75 000.

2 Net cash income.

»» TABLE 7.10: HAWKES BAY VINEYARD PRODUCTION AND INCOME DETAILS, 2007/08

	AREA (HA)	PRODUCTION PER HA (t/HA)	TOTAL PRODUCTION (t)	GROSS YIELD (%)	BRIX LEVEL (BRIX)	RETURN (\$/t)	REVENUE (\$)
YEAR ENDED 30 JUNE							
Chardonnay – Mendoza and clone 15	1.6	6.6	10.8	16	22.8	1 750	18 850
Sauvignon Blanc	1.4	7.2	10.4	16	21.5	1 800	18 662
Chardonnay – all other clones	0.7	8.0	5.4	8	22.4	1 700	9 139
Pinot Gris	0.6	5.6	3.2	5	22.8	1 900	6 129
Other white	0.3	8.9	2.6	4	...	1 530	3 922
Merlot	2.4	7.3	17.5	27	23.2	1 800	31 536
Other red, including Cabernet Sauvignon	1.5	6.0	9.2	14	...	2 040	18 801
Syrah	0.4	4.2	1.6	2	23.0	2 250	3 629
Pinot Noir – sparkling	0.7	7.9	5.3	8	18.5	900	4 778
Total/average	9.6	6.9	66	100	...	1 749	115 445

Symbol

... Not applicable.

»» TABLE 7.11: HAWKES BAY VINEYARD FORECAST PRODUCTION AND INCOME DETAILS, 2008/09

	AREA (HA)	PRODUCTION PER HA (t/HA)	TOTAL PRODUCTION (t)	GROSS YIELD (%)	BRIX LEVEL (BRIX)	RETURN (\$/t)	REVENUE (\$)
YEAR ENDED 30 JUNE							
Chardonnay – Mendoza and clone 15	1.6	8.6	13.8	19	22.8	1 750	24 078
Sauvignon Blanc	1.6	8.0	12.8	18	21.5	1 775	22 718
Chardonnay – all other clones	0.7	8.0	5.6	8	22.4	1 700	9 574
Pinot Gris	0.6	6.6	3.9	5	23.0	1 850	7 306
Other white	0.3	9.1	2.7	4	...	1 550	4 220
Merlot	2.4	8.6	20.6	28	23.4	1 800	37 148
Other red, including Cabernet Sauvignon	0.7	6.5	4.6	6	...	2 045	9 358
Syrah	0.4	5.3	2.1	3	23.0	2 250	4 722
Pinot Noir – sparkling	0.5	12.8	6.4	9	18.5	900	5 778
Total/average	8.8	8.2	72.6	100	...	1 720	124 903

Symbol

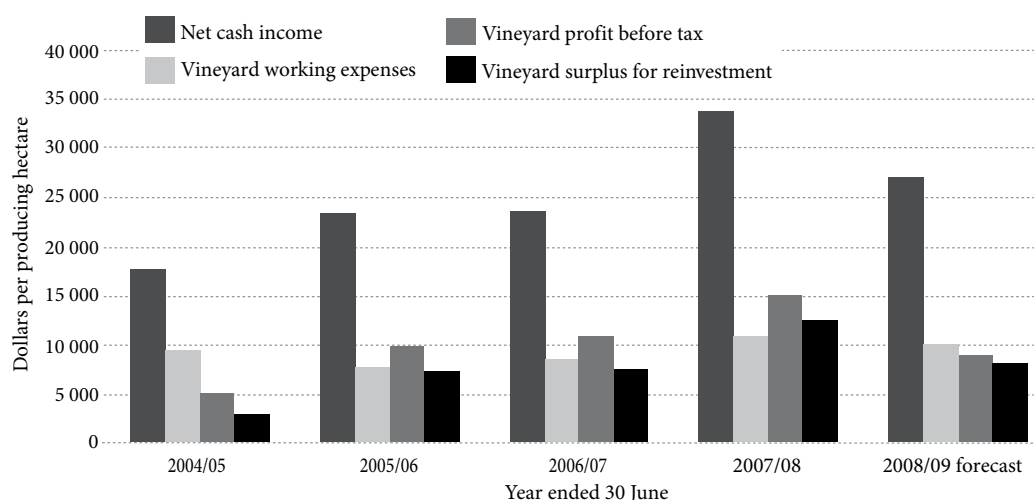
... Not applicable.

»» IMPLICATIONS AND ANALYSIS

» PROFITABILITY TRENDS

The Marlborough vineyard model continues to deliver a substantial profit (Figure 7.1). Although yields and prices are forecast to decrease in 2008/09, a healthy bottom line is still anticipated, with a vineyard surplus for reinvestment of \$7872 per producing hectare. This surplus provides growers with resources to enhance the viability of their businesses.

»» FIGURE 7.1: MARLBOROUGH VITICULTURE MODEL PROFITABILITY TRENDS



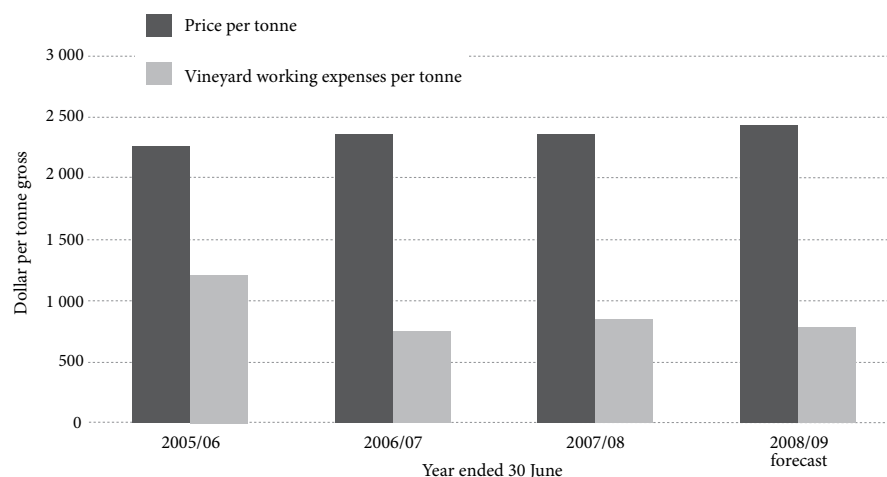
Source
MAF Monitoring Reports; 2005 to 2008.

The profitability of the Marlborough vineyard model is strongly influenced by Sauvignon Blanc. This variety accounts for 70 percent of the planted area and an equivalent proportion of the grape income for the model. Prices for Sauvignon Blanc have been maintained or improved over the four years from 2004/05 to 2007/08, providing an average of \$2350 per tonne. The returns for this variety outweigh the average costs of production two to three-fold (Figure 7.2). Margins improve with higher yields, as recorded in the 2008 vintage.

The continuing high profit levels achieved for Marlborough Sauvignon Blanc is encouraging ongoing investment in the industry. A major grapevine nursery in Marlborough estimates approximately 9 million vines are on order across the whole industry for planting in winter 2008. Sauvignon Blanc is the major variety on order at 70 percent while Pinot Gris and Pinot Noir at 25 percent are also popular. Approximately 75 percent of these vines are destined for Marlborough and are likely to lead to a further increase of approximately 10 to 15 percent in this region's vineyard planted area.

The profitability of the Hawkes Bay model vineyard is challenged by reduced yields and increasing costs (Figure 7.3). Changes in varietal mix and investment in frost protection should return the vineyard to a profit in the short

»» FIGURE 7.2: AVERAGE PRICES AND COSTS OF PRODUCTION OVER TIME FOR MARLBOROUGH SAUVIGNON BLANC



Source
MAF Monitoring Reports; 2006 to 2008.

to medium term. Off-vineyard income and investments will be relied on until the newly planted vines come into full production.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» GROWER MORALE AND BUSINESS VIABILITY PLANS

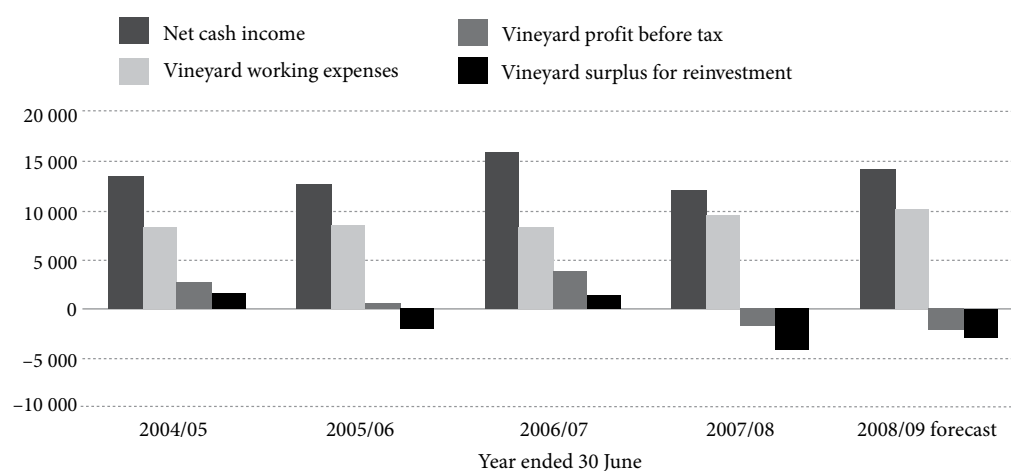
The confidence of growers in the two main growing regions remains different. Growers in Marlborough generally expressed a continued level of high confidence in the profitability of their industry in the short to medium term. Hawkes Bay growers were more reserved, given stagnant or declining profitability levels.

Most growers in the Marlborough survey group believed that the record yields and high returns achieved in 2007/08 would be difficult to repeat. However, even at slightly lower yields and prices, growers have moderate to strong confidence in their future. While some growers are looking to plant existing land or expand if suitable land were available, most growers are seeking to increase business efficiencies to consolidate incomes. Despite an apparent increased number of vineyards on the market in the Marlborough region, none of the survey growers are considering exiting the industry.

Confidence is generally lower in Hawkes Bay. However, several growers are investing in their businesses, planting new varieties or installing frost protection on the back of supporting

contracts from wineries. Some growers are producing their own wine or introducing new crops as a way of increasing income.

»» FIGURE 7.3: HAWKES BAY VITICULTURE MODEL PROFITABILITY TRENDS



Source
MAF Monitoring Reports; 2005 to 2008.

» GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Growers in both regions are working to reduce input costs. A small number of growers were resigned to the fact that input prices, especially fuel and electricity, were out of their control. Growers in Marlborough were more able to absorb input price increases than those in Hawkes Bay.

Growers are responding to the increased cost of contract labour by doing more of the vineyard work themselves, or employing staff directly rather than using contractors. However, most growers do not have the capacity to complete their pruning requirements, and rely on contract labour for this. Growers in Hawkes Bay felt they were forced to pay higher wages to retain staff due to competition for pruning labour from Marlborough.

Increased efficiencies within the vineyard are seen as one way of reducing unit costs. Increased mechanisation, especially for pruning, is seen as an inevitable outcome of the current labour shortages. Mechanised strippers have the potential to significantly reduce the cost of cane pruning, with some growers estimating payback periods of between six weeks and one season, depending on the degree of sophistication and therefore, cost of the machinery. Growers are altering their pruning systems (from cane to spur pruned) to facilitate mechanisation.

Growers are increasing their monitoring of pest and disease pressure to reduce the number of chemical applications. While this is also driven from a sustainable winegrowing perspective, the reduction in costs is considered more important. Most growers are also monitoring soil moisture levels and only irrigating as necessary, which is reducing electricity costs.

➤ ENVIRONMENTAL AND RESOURCE MANAGEMENT ISSUES

In 2007 New Zealand Winegrowers announced that sustainability was to be central to its activities. It is aiming for all New Zealand grapes and wine to be produced under independently audited sustainability schemes by vintage 2012. Consistent with this, growers on the survey panels highlighted environmental and resource management as an increasingly important issue.

The majority of growers are using monitoring methods to ensure the judicious application of chemicals and irrigation water. The use of biological methods to control *Botrytis cinerea* seems to be rising. Sheep are increasingly being used to control weeds and herbicide use is decreasing.

Many growers in Marlborough are planting amenity species and natives within their properties to increase biodiversity.

Using machinery that allows multi-tasking is seen as one way of reducing fuel consumption and compaction within the vineyard. Growers are purchasing front-mounted leaf pluckers or shoot trimmers to allow these operations to be completed at the same time as mowing or weed spraying.

CANTERBURY

ARABLE CROPPING

8

»» KEY POINTS

- › Gross farm revenue per hectare increased 28 percent in 2007/08 on the model farm, due to improved crop prices. These prices are forecast to further improve in 2008/09, increasing revenue by 20 percent.
- › Farm working expenses per hectare increased 15 percent in 2007/08, due mainly to energy and fertiliser price rises. The forecast 23 percent rise in farm working expenses in 2008/09 is likely to be conservative, given recent general input price increases.
- › Input price increases are encouraging farmers to use fertiliser, fuel and water more efficiently, which also helps reduce adverse environmental impacts.
- › The arable model reflects a general trend towards increasing crop areas and reducing sheep numbers, with a greater focus on supplying the growing dairy industry with feed and grazing.
- › Intensive arable farms are in a sound financial position, which is lifting farmer morale. Farmers are responding to the current global lift in grain prices in a positive but prudent way by investing time and capital in improving the efficiency of their businesses.

»» TABLE 8.1: KEY PARAMETERS, FINANCIAL RESULTS AND FORECASTS FOR THE CANTERBURY ARABLE MODEL FARM

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
Total effective area (ha)	282	282	285	290	290
Effective cropping area (ha)	214	209	214	230	238
Total crop revenue (\$)	435 100	499 000	559 900	736 700	923 900
Sheep opening stock units	1 030	1 024	1 010	910	859
Lambing (%)	127	125	122	125	125
Gross farm revenue (\$)	673 100	653 800	695 600	903 000	1 083 000
Farm working expenses (\$)	365 100	393 800	420 600	490 700	603 000
Farm profit before tax (\$)	152 000	96 500	93 200	225 400	270 700
Farm surplus for reinvestment ¹ (\$)	47 100	28 200	54 400	81 500	52 700

Note

¹ Farm surplus for reinvestment is the cash available from the farm business, after meeting living costs, which is available for investment on the farm or for principal repayments. It is calculated as discretionary cash less off-farm income and drawings.

»» FINANCIAL PERFORMANCE OF THE CANTERBURY ARABLE MODEL FARM IN 2007/08

» REVENUE LIFTS SIGNIFICANTLY

Gross farm revenue for the model farm increased 30 percent in 2007/08 compared with the previous season. The main reasons were improved cereal prices, an increase in the area of crops grown, and good growing and harvesting conditions. See Tables 8.3 and 8.4 for details of the model farm's income and expenditure in 2007/08.

CEREALS ARE THE DRIVING FORCE

The proportion of total crop area in cereals increased by 17 percent in 2007/08, as farmers responded to rising cereal prices (Table 8.2). The average sale price for wheat in 2007/08 was \$313 per tonne, an 11 percent increase on the previous year. Barley prices increased similarly, rising from \$250 per tonne average in 2006/07 to \$292 per tonne in 2007/08. The value of crop on hand increased by 13 percent, mainly due to the increase in prices. However, some farmers were unable to capitalise on the increasing wheat prices through the 2007/08 season as they had contracted some or all of their wheat crop in May 2007 at prices similar to 2006/2007 levels.

Wheat yields at 9.3 tonnes per hectare were similar to the high yields experienced in 2006/07, despite the hot, dry summer that shortened the ripening period and restricted grain fill. Barley yields were slightly lower than in 2006/07 at 8.2 tonnes per hectare. Disease incidence was reduced by the hot dry conditions, assisted by improved disease resistance in new cereal cultivars. Grain quality was good, apart from some pinched grain and sprouting in some crops.

»» TABLE 8.2: CANTERBURY ARABLE MODEL FARM CROP AREAS

YEAR ENDED 30 JUNE CROP	2006/07 (HA)	2007/08 (HA)	2008/09 FORECAST (HA)
Wheat	61	71	78
Barley	31	35	40
Other cereals	3	5	6
Grass seeds	37	45	46
Clover seeds	20	14	13
Vegetable/brassica seeds	15	15	14
Other seeds	8	7	3
Pulses	12	11	12
Silage crops	12	16	18
Process/fresh vegetable crops	15	11	8
Total crop area	214	230	238
Effective area	285	290	290
Percent of effective area in crop	75%	79%	82%

SEEDS STEADY

Grass seed yields across cultivar types were average to above average. There were no frosts, soil moisture was good during pollination and seed set, and the harvest weather was ideal. Seed quality was therefore good, so returns to farmers were much higher than in 2006/07 when adverse weather conditions reduced grass seed quality.

Above-average yields and good quality were achieved for clover seed crops, despite dry weather and high temperatures. The increased specialisation of clover seed production among farmers is improving average yields.

In irrigated areas, vegetable and brassica seeds yielded well, due to the moist spring and hot, dry early summer. Plant development and pollination were good and, unlike during 2006/07 when many crops were ruined by a wet harvest, almost all crops were harvested in good condition in 2007/08.

OTHER CROPS AND STRAW

Yields from process and dry pea crops improved in 2007/08 but returns did not increase sufficiently to buffer the rise in input costs or to match returns from other crops.

The maize silage area in the model increased in 2007/08 in response to the demands of the dairy industry. Yields were high due to the very warm, sunny weather. The popularity of cereal silage on this farm type has fallen, due to the increased return from grain and the challenges associated with the very short harvest window available to produce high-quality cereal silage.

A bonus for arable farms in 2007/08 was the demand for straw and residues following harvest. This was due to increased demand from the dairy industry and the reduction in the silage and baleage harvest caused by the drought that affected most of the country. Normally, the costs of recovering and baling straw are barely covered by the sale price. However, in 2007/08, additional revenue for these sales amounted to \$35 000 in the model, although there were some additional costs for baling and some further removal of nutrients.

Details of climatic conditions for the Canterbury region for the 2007/08 season are included in Appendix 3.

LIVESTOCK INCOME

Sheep and cattle as a proportion of gross farm income net of purchases decreased from 14 percent in 2006/07 to 9 percent in 2007/08. The high workload and lack of profitability compared with other options is resulting in ewe flocks disappearing from Canterbury arable farms. Arable farmers continued to finish store lambs through the late autumn and winter, although margins were lower in winter 2007 than in previous years. Returns from grazing dairy heifers and cows continued to increase steadily.

➤ EXPENDITURE INCREASES

Farm working expenditure increased by 17 percent from \$420 600 in 2006/07 to \$490 700 in 2007/08. The main influence was increasing prices for electricity, fertiliser and fuel but there were also increases due to the enlarged

crop area. Contractors are increasingly being used for specialist jobs, for example, direct drilling, precision drilling and small seed harvesting. This is mainly for labour-saving reasons, but also where purchase of a little-used specialised machine is unjustified.

Electricity costs increased 24 percent due to a return to normal irrigation levels following the much wetter 2006/07 growing season.

Fertiliser costs rose by 29 percent, from \$252 per hectare in 2006/07 to \$324 per hectare in 2007/08. This was partially because the area of crop on the model farm had increased by 7 percent, but the main influence was the increased prices of urea and phosphate-based fertilisers. Arable farmers in the survey group are constantly evaluating fertiliser use against crop needs, so there is little room for reductions without significant effects on yield.

Diesel prices increased 85 percent from June 2007 to June 2008. Timing of fuel purchases during the season as well as improvements in cultivation practices meant that fuel expenditure in the model budget increased by only 26 percent. Continued investment in more efficient tractors also helped to reduce fuel use.

Expenditure on repairs and maintenance increased slightly in 2007/08. Generally, fewer repairs were required because of the continual upgrading of plant in recent years, but the cost of specialised labour in particular has increased significantly.

Interest costs increased during 2007/08 as fixed rate mortgages were renewed at higher rates. Tax was reassessed during 2007/08 to minimise the risk of penalty payments. Farmers spent more on capital purchases in 2007/08, upgrading necessary plant and machinery in response to the favourable cereal crop returns and the high value of the New Zealand dollar.

➤ NET CASH RESULT REMAINS MODEST

Despite good yields and higher prices, the model shows only a small cash surplus, even after a further increase in borrowings equal to the increase in crop on hand. The model is therefore considered to be in a sound but not exceptionally profitable position, with a low debt to equity ratio. Return on assets is a modest 4 percent, excluding capital gain.

»» FORECAST FINANCIAL PERFORMANCE OF THE CANTERBURY ARABLE MODEL FARM IN 2008/09

With crop prices expected to hold or even increase further, and the dairy and land markets buoyant, arable farmers predict their financial performance will improve in 2008/09. See Tables 8.3 and 8.4 for details of the model farm's forecast income and expenditure for 2008/09.

» REVENUE EXPECTED TO IMPROVE FURTHER

Gross farm revenue in the model is forecast to increase by 20 percent during 2008/09, driven by an increase in cropping area and expectations of further increases in cereal prices.

CEREAL PRICES SET TO REMAIN HIGH – BUT HOW HIGH?

Farmers on the survey panel are intending to increase their area of cereal production in response to expectations that the high prices will continue. The model forecasts expectations of \$470 per tonne for feed wheat and \$420 per tonne for barley in 2008/09, reflecting an increase of 27 percent and 35 percent in the average sale price for wheat and barley, respectively.

There is a lot of uncertainty around the forward forecast grain prices for 2008/09. The forecasts were based on the following considerations:

- › expected drop in demand from traditional users of feed cereals, including the pig, poultry and beef feedlot sectors;
- › expected increase in demand for feed cereals by the dairy sector;
- › global supply forecasts in July 2008 predicted record production levels, but drought in Australia is continuing to impact on yield potential.

SEEDS PROMISING FOR SOME

Areas of proprietary grass seed production and, to a lesser extent, clover are expected to increase due to a number of factors, including:

- › increased demand for seed to repair drought-affected pastures in New Zealand and elsewhere;
- › significant increases in the commodity prices for non-proprietary seed;
- › traditional seed-producing areas worldwide being used for the production of food and biofuel crops.

Farmers expect planted areas of other seed crops to decline if they cannot compete with the increased returns for commodity seeds and cereals. Over recent years, variability in yields, high costs of production and high demands on expertise have made farmers wary about the viability and profitability of these crops.

OTHER CROPS

Farmers and the industry expect a good range of spring crop options to be available at competitive prices. Process pea growers, in particular, say the prices they received during 2007/08 must be increased to compete with other crop options.

LIVESTOCK RETURNS TO IMPROVE

Lamb finishing margins are expected to be better during the 2008 winter, with purchases made at much lower prices due to the drought and low meat price expectations in autumn 2008. Grazing prices have increased significantly, from \$18 per cow to \$24 per cow, and heifer grazing from \$6.70 per week to \$8.50 per week. These increases have not been matched to date by other livestock options.

› EXPENDITURE TO INCREASE FURTHER

Farm working expenditure is budgeted to increase by a further 23 percent for the 2008/09 season. The most significant increases are for fertiliser (76 percent), fuel (24 percent) and electricity (21 percent).

Despite price rises, the model budget assumes that fertiliser rates for nitrogen will not generally be reduced, except where farmers are becoming more efficient in their use. High rates of nitrogen are needed to obtain the yields budgeted. A reduction in phosphate maintenance fertiliser is expected in response to the higher prices, since most farms have more-than-sufficient phosphate levels, as indicated in soil tests. In addition to the price effects, farmers are concerned that there may not be a supply of fertiliser available when it's needed, particularly supplies of urea.

Electricity and fuel increases are due mainly to expected increases in unit prices. Most other costs are expected to increase as the energy prices flow through to other inputs, for example, weed and pest control, freight costs and contractors' rates.

Interest costs are forecast to rise by 14 percent, as fixed mortgages from several years ago are renewed at the currently higher rates.

Farmers expect to continue to invest steadily in plant and irrigation upgrades, with the aim of improving efficiency of energy, labour and water use. The upgrading of irrigation systems is also focused on improving application uniformity, the flexibility of the system to apply variable amounts of water based on crop need, and the reliability of scheme-supplied water. Continuing the recent trend, farmers are likely to borrow to fund these upgrades, and will repay the additional debt incurred in following years from cash flow. However, term debt is unlikely to be reduced, as farmers are generally in high-equity positions and believe they will get a better return on capital investments than they are paying in interest.

Farmers are making the most of the high value of the New Zealand dollar and purchasing imported tractors and implements. However, the supply of harvesting equipment to New Zealand is constrained due to the increased plantings of crops globally in response to price increases.

➤ A POSITIVE NET RESULT

The model forecasts a positive cash position for 2008/09 but with slightly increased debt levels. Arable farmers tend to remain uncommitted to expenditure on non-productive items until the money is in the bank, so drawings do not increase by much.

»» TABLE 8.3: CANTERBURY ARABLE MODEL FARM CROPPING BUDGET

	2007/08		2008/09 FORECAST	
	WHOLE FARM (\$)	PER HA (\$)	WHOLE FARM (\$)	PER HA (\$)
REVENUE				
Cereals	293 300	...	381 000	...
Small seeds	239 700	...	265 600	...
Other crops	66 400	...	82 000	...
Process/fresh vegetables	32 200	...	28 300	...
Land leased for cropping	8 700	...	5 800	...
Change in value of crop on hand	96 400	...	161 200	...
Total crop revenue	736 700	2 540	923 900	3 186
Sheep income (incl wool)	161 800	558	135 100	466
Grazing income	35 000	121	45 000	155
Other farm income	52 800	182	45 000	155
LESS:				
Sheep purchases	81 700	282	65 800	227
Stock value adjustment	-1 600	-5	-100	0
Gross farm revenue	903 000	3 114	1 083 000	3 735
Farm working expenses	490 700	1 692	603 000	2 079
Cash operating surplus	412 300	1 422	480 000	1 655
Interest	121 500	419	138 700	478
Rent and/or leases	0	0	0	0
Minus depreciation	65 400	226	70 600	243
Farm profit before tax	225 400	777	270 700	933
Taxation	60 500	209	71 500	246
Farm profit after tax	164 900	569	199 200	687
Add back depreciation	65 400	226	70 600	243
Reverse stock value adjustment	-94 800	-327	-161 100	-556
Off-farm income	3 000	10	3 000	10
Discretionary cash	138 500	477	111 700	385
APPLIED TO:				
Net capital purchases	100 000	345	100 000	345
Development	25 000	86	44 000	152
Principal repayments	32 000	110	50 000	172
Drawings	54 000	186	56 000	193
New borrowings	100 000	345	150 000	517
Introduced funds	0	0	0	0
Cash surplus/deficit	27 500	95	11 700	40
Farm surplus for reinvestment¹	81 500	281	52 700	182
ASSETS AND LIABILITIES				
Farm, forest and building (opening)	5 655 000	19 500	7 504 900	25 879
Plant and machinery (opening)	436 000	1 503	470 600	1 623
Stock valuation (opening)	54 400	187	52 800	182
Crop valuation (opening)	416 000	1 434	512 400	1 767
Other farm related investments	0	0	0	0
Total farm assets (opening)	6 561 300	22 625	8 540 700	29 451
Total farm liabilities (opening)	1 383 600	4 771	1 421 600	4 902
Total equity	5 177 700	17 854	7 119 100	24 549

Note

¹ Farm surplus for reinvestment is calculated as follows: discretionary cash less off-farm income and drawings.

Symbol

... Not applicable.

»» TABLE 8.4: CANTERBURY ARABLE MODEL FARM EXPENDITURE

	2007/08		2008/09 FORECAST	
	WHOLE FARM (\$)	PER HA (\$)	WHOLE FARM (\$)	PER HA (\$)
FARM WORKING EXPENSES				
Permanent wages	36 500	126	38 000	131
Casual wages	4 350	15	4 640	16
ACC – employees	1 080	4	950	3
Total labour expenses	41 930	145	43 590	150
Contracting (including harvesting/drying)	22 620	78	24 940	86
Animal health	4 640	16	3 770	13
Breeding	0	0	0	0
Electricity	22 620	78	27 260	94
Feed (hay and silage)	4 350	15	4 350	15
Feed (crops)	0	0	0	0
Feed (grazing)	0	0	0	0
Feed (other)	1 450	5	0	0
Fertiliser	94 090	324	165 320	570
Lime	5 800	20	7 250	25
Freight	17 110	59	20 590	71
Seed dressing	29 580	102	28 710	99
Seeds	26 970	93	29 870	103
Shearing costs	2 730	9	2 580	9
Weed and pest control	79 750	275	91 060	314
Fuel	35 090	121	43 500	150
Vehicle costs (excluding fuel)	19 430	67	23 200	80
Repairs and maintenance	32 480	112	31 610	109
Total other working expenses	398 710	1 375	504 010	1 738
Communication costs (phone and mail)	3 770	13	3 770	13
Accountancy	4 350	15	4 350	15
Legal and consultancy	5 220	18	4 930	17
Other administration	3 480	12	3 480	12
Rates	9 860	34	10 440	36
Insurance	12 470	43	12 760	44
Water charges	1 160	4	1 160	4
Other expenditure	9 720	34	14 540	50
Total overhead expenses	50 030	173	55 430	191
Total farm working expenses	490 670	1 692	603 030	2 079
Wages of management	75 000	259	75 000	259
Depreciation	65 400	226	70 590	243
Total farm operating expenses	631 070	2 176	748 620	2 581
CALCULATED RATIOS				
Economic farm surplus (EFS ¹)	271 900	938	334 400	1 153
Farm working expenses/GFR ²	54%		56%	
EFS/total farm assets	4.1%		3.9%	
EFS less interest and lease/equity	2.9%		2.7%	
Interest + rent + lease/GFR	13.5%		12.8%	
EFS/GFR	30.1%		30.9%	

Notes

1 EFS (or earnings before interest and tax) is calculated as follows: gross farm revenue, less farm expenses, less depreciation, less wages of management (WOM). WOM is calculated as follows: \$31 000 allowance for labour input plus 1 percent of opening total farm assets to a maximum of \$75 000.

2 Gross farm revenue.

»» IMPLICATIONS AND ANALYSIS

» PROFITABILITY TRENDS

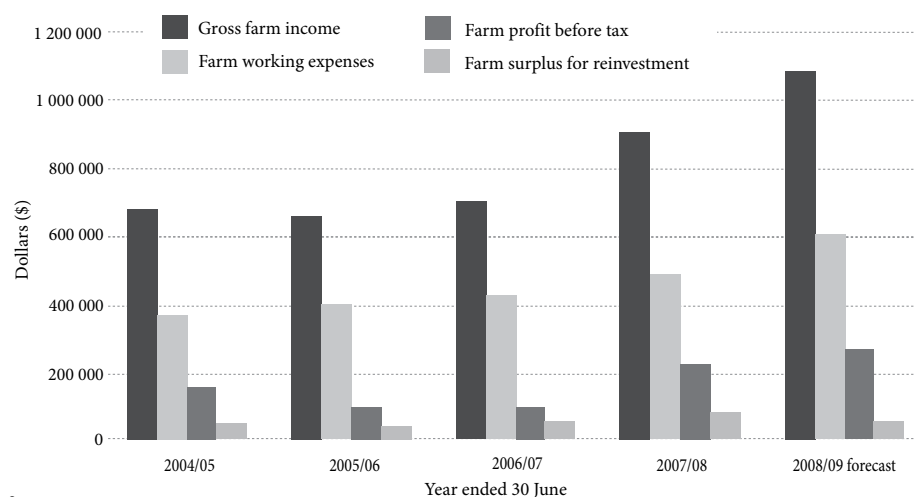
Gross farm revenue for the arable model has increased steadily since 2004/05 (Figure 8.1). However, costs have also increased steadily, so profit has fallen over the last three years. The model farm's profitability improved significantly in the 2007/08 year, and farmers expect this trend to continue for 2008/09. Despite this, the farm surplus for reinvestment has increased by only about \$35 000 since 2004/05. Rising costs and increasing amounts of crop on hand at the end of the financial year have reduced the amount of cash available for reinvestment.

While the arable model demonstrates improving profitability, the business reaches a breakeven position after interest, tax and development. Debt has increased only marginally, so the debt to equity ratio of this sector is reasonably low. Further significant increases in costs are very likely and will be difficult to absorb.

The arable sector has experienced a huge increase in land values over the past 18 months, due mainly to the demand for good soils by North Island vegetable growers moving south and generally better crop price prospects. While dairy farming may not directly compete for good arable soils, it is generally accepted that the influence of dairying on land prices is upwards.

The rise in land values has moderated the return on capital, as measured by the ratio of economic farm surplus to total farm assets. In 2004/05, this ratio was 3.6 percent, reaching 4.1 percent in 2007/08, during which time gross farm revenue increased 34 percent. This suggests that there is unlikely to be a swing into intensive cropping from other land uses, despite the increased gross returns and profitability.

»» FIGURE 8.1: CANTERBURY ARABLE MODEL FARM PROFITABILITY TRENDS



Source
MAF Monitoring Reports; 2005 to 2008.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» FARMER MORALE AND BUSINESS VIABILITY PLANS

Morale among arable farmers is high. Farmers are responding to the current global lift in grain prices in a positive but prudent way by investing time and capital in improving the efficiency of their businesses.

Arable farmers are undertaking a number of actions to strengthen business viability, mostly through changes in crop/stock mix and investment in plant. Other measures include changes in business structure, reduction of operating costs and adoption of more sustainable tillage practices.

Off-farm investment by arable farmers appears to be reducing as farmers perceive they get better returns from both capital and effort from their farming businesses at present. Despite high land prices, some arable farmers are still interested in expansion to take advantage of economies of scale with machinery and labour use.

» FARMER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Farmers are concerned about the impact of energy costs on the viability of their business. These costs are associated with cultivation, freight, nitrogen fertiliser, irrigation and crop drying. The use of minimum tillage and direct drilling practices has increased and is delivering a good return on capital investment as fuel prices rise. Single-pass cultivation is common, helped with high horsepower tractors that can pull multiple implements with improved fuel efficiency.

The arable sector is very responsive to input price changes, due to a combination of factors. The farm system has high capital and technology inputs, which increases the scope to upgrade plant and improve management on an incremental basis. The industry has ready access to overseas-developed technology, and many in the industry keep a very close eye on new global technology developments. The high level of awareness of production costs amongst arable farmers has guided the spending of industry levy funds on research and technology transfer activities to improve input efficiencies.

» ENVIRONMENTAL AND RESOURCE MANAGEMENT

Farmers are becoming more aware of the impacts of farming practices on the environment and are adopting management practices that reduce the environmental impact of arable farming. Rising costs are also encouraging more efficient use of fertiliser, fuel and labour.

Arable farmers are well aware of the potential impacts of negative publicity on environmental management. For example, alternatives to stubble burning are increasingly practised so that this important management option is not completely lost through public opposition. The use of deep soil nitrogen testing is another measure adopted by the arable sector to improve the efficiency of nitrogen use. Over half of the farmers surveyed have changed their fertiliser management as a result of nutrient budgeting and measurement. This includes some who increased their nitrogen use based on low test results, indicating that testing can lead to more efficient use of inputs. Continued improvements are being made to nutrient budgeting software for the arable sector.

Irrigation scheduling and monitoring are also becoming more common. This varies from specialised services and equipment measuring soil moisture, through to more traditional methods, such as using a spade and visual observation. There is an opportunity to increase the auditing of irrigation systems on arable farms to further improve their efficiency. Those with water meters find them to be a useful management tool.

Cultivation practices are changing, driven mainly by the need to reduce fuel, labour and machinery inputs. Feedback from the survey group and from industry representatives suggests an increased use of direct drilling and less ploughing. Changing cultivation systems requires the upgrading of plant, especially tractors and expensive machinery such as drills. In practice, this will occur when older plant is due for upgrading.

The farm model showed an increase in the use of contractors, some of which is due to farmers trialling direct drilling using a contractor before adopting it on the whole farm. Examples of successful system changes include the supreme winner of the 2007 Canterbury Ballance Farm Environment Awards, which was a direct drilling intensive arable farm. Evidence from this farm shows that reducing cultivation is more efficient for labour, capital and fuel, with further benefits in productivity, soil health and water use. Differences in fertiliser use and chemical use are harder to pinpoint – advocates of direct drilling suggest some improvement over time once the biological system reaches equilibrium.

► BIOFUELS AND OTHER CROPS

The potential expansion of oil seed rape (OSR) for biodiesel and food grade oil production in New Zealand is causing both optimism and concern in the arable sector. Continued debate surrounds the biofuel revolution and its effect on world food crop prices. Some international reports suggest that crop production for biofuel is one of the major factors responsible for the increase in food prices worldwide. A positive for the New Zealand arable sector is that OSR offers another viable break crop option for growers to consider in their rotation. OSR is grown in rotation with other crops and is mostly displacing pastoral farming at present.

However, increased plantings of OSR pose risks to the export-oriented vegetable seed production industry. Such risks include the management of crop separation distances and also the increase in seed in the soil and wider landscape, which may cause purity issues in future crops and preclude seed production options. Post-harvest management will help mitigate the seed bank issue, and compliance with the voluntary Seed Crop Isolation Distance (SCID) programme by all companies responsible for contracting OSR should alleviate crop separation risks.

Production of OSR is expected to increase to 10 000 hectares for the 2009 harvest, of which about 6000 hectares has been planted in north, south and central Canterbury. The planted area is



expected to increase significantly in 2010 to an estimated 15 000 hectares, with future growth likely to reach an annual planted area of 35 000 hectares in the South Island. Yields will be difficult to predict, as the crops are generally grown on dryland farms, some on soil types that are marginal for cropping. Yield estimates are predicted to range from 3.5 to 4.5 tonnes per hectare for autumn-sown crops and 2.3 to 3.0 tonnes per hectare for spring-sown crops.

The impact of converting pastoral land to OSR production in rotation with other crops could lead to increased volumes of cereal available on the domestic market. Some farmers fear this could have an impact on prices. Excess cereal production may need to be exported to maintain price stability, but shipping grain is expensive, both domestically and internationally. However, the significant growth in the dairy sector may mean this excess is absorbed domestically.

➤ BIOSECURITY

Arable and seed crop growers are very concerned about the appearance of the varroa bee mite in the South Island. Beehives must be constantly moved around the region to successfully pollinate a multitude of crops. If any restrictions were imposed on the movement of bees in Canterbury, it would have a major impact on the arable sector. In the longer term, the establishment of varroa will increase the pollination fees charged to seed producers, and is likely to reduce the number of hives available for pollination.

Didymo is also a concern, as many farmers use water from the Rangitata and Rakaia rivers for irrigation. Didymo has been found in the Rangitata River but so far not in the Rakaia River. Didymo blocks irrigator nozzles and there is currently no technology to deal with this problem.

PROCESS AND FRESH VEGETABLES

9

»» KEY POINTS

- › Gross margins for many vegetable crops fell in 2007/08 compared with the previous year. The main exception was the marked improvement in financial outcome for fresh potato production.
- › The lower gross margins were mostly caused by lower prices and, in some cases, lower yields, and higher input costs.
- › Low rainfall over the growing season reduced yields in some crops, although irrigation was used to counter the dry conditions over most of the country.
- › Growers are concerned about their business viability, following many years of low returns and the prospect of further cost increases.
- › The Recognised Seasonal Employer scheme has helped address seasonal labour shortages in the vegetable industry.

»» FINANCIAL PERFORMANCE OF PROCESS AND FRESH VEGETABLES IN 2007/08

The gross margins in Table 9.1 provide an indication of returns per hectare for the crops listed.

»» TABLE 9.1: VEGETABLE GROSS MARGINS¹, 2006/07 AND 2007/08

YEAR ENDED 30 JUNE	2006/07			2007/08		
	PRICE (\$)	YIELD (UNITS/HA)	GROSS MARGIN (\$/HA)	PRICE (\$)	YIELD (UNITS/HA)	GROSS MARGIN (\$/HA)
SOUTH AUCKLAND/WAIKATO						
Asparagus (t)	2 300	4	2 120	2 150	3.6	1 505
Onions (t)	440	35	3 620 ²	350	35	1 585
Potatoes (t)	330	45	940	570	37	4 060
Greens						
– Broccoli (crates)	16.00	1 000	3 565	11.90	1 000	– 530
– Cauliflower (crates)	10.00	1 735	2 280	8.50	1 735	– 740
– Lettuce (crates)	9.00	3 800	3 950	8.75	3 800	3 385
HAWKES BAY/GISBORNE						
Squash (t)	400	14	1 010	450	14	1 045
Sweetcorn – process (t)	170	18	1 360	175	17.5	1 245
CANTERBURY						
Peas – process (t)	265	8	1 265 ²	265	8	1 420
Potatoes – process (t)	165	60	3 000 ²	165	60	2 330
Onions (t)	425	40	6 550 ²	350	40	4 940

Notes

1 The gross margin calculates the revenue less direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending. These figures vary considerably, due to individual differences such as varieties and yields. Gross margins are provided for export and local market vegetable crops over the main fresh market and process production regions (South Auckland, Waikato, Hawkes Bay/Gisborne and Canterbury).

2 These figures differ from those published in 2007 due to a change in the way post-harvest costs are incorporated in the gross margins.

Sources

Fruition Horticulture, AgriLINK New Zealand and Lauriston Farm Improvement Club.



Financial outcomes for the vegetable industry in 2007/08 were generally lower than in the previous year. Gross margins fell for most of the crops grown due to a combination of climatic, market and cost pressures (Table 9.1). On average, broccoli and cauliflower returns did not cover the direct costs of production. However, potatoes for the fresh market achieved a much higher gross margin than in 2006/07, due to improved prices.

The 2007/08 growing season for most vegetable producers was considerably drier than average, but the majority of growers were able to cope with the drier conditions as a result of their investment in irrigation infrastructure.

The Pukekohe region received only 73 percent of normal rainfall during the year ended 31 March 2008, and the first three months of 2008 had only 37 percent of long-term average rainfall levels. Hawkes Bay was also drier than the long-term average, with only 78 percent of normal rainfall. The Canterbury Plains were not significantly drier than previous years, receiving 93 percent of normal rainfall levels. Gisborne was the notable exception to this dry season, and growers had a wetter season than usual and also unusually low evapotranspiration rates. Graphs summarising the temperature and rainfall conditions in the main growing regions for the year ended 31 March 2008 are provided in Figures A3.5 and A3.6 in Appendix 3.

The costs of many inputs (such as fertiliser, fuel and labour) increased over the 2007/08 growing season. Compound fertiliser products, which are commonly used by vegetable growers, had cost increases of 20 to 25 percent over the season, and further rises are expected in 2008/09. Some fertiliser products were not available when required by growers, with fertiliser companies struggling to meet demand due to world shortages.

Agrichemical costs remained relatively stable in 2007/08. Growers are expecting this situation to change, with large increases being quoted by suppliers for the 2008/09 growing season. The adoption of new, softer¹ agrichemicals into Integrated Pest Management programmes is also likely to push up costs, as these novel products tend to be more expensive.

Land lease costs are increasing. Growers in the Pukekohe area are budgeting \$1800 per hectare for 2008/09. Canterbury growers are currently paying between \$2000 and \$2500 per hectare, and are expecting lease costs to increase to around \$3000 next year. The rising costs of leased land combined with the rising costs of inputs will further challenge the profitability level of vegetable production in 2008/09.

➤ POTATOES

The production area of potatoes during the 2007/08 growing season was estimated to be 10 605 hectares, marginally up on the previous season, and similar to the average of the past 14 years. The proportion of process potatoes in the total area continued to increase.

The very positive financial outcome for fresh potato growers in the North Island saw the average gross margin lift

¹ "Soft" chemicals are highly targeted at a pest species, in contrast to broad-spectrum pesticides, and are therefore more benign for beneficial insects, users and the environment. They are often used as part of Integrated Pest Management programmes.

from \$940 per hectare in 2006/07 to \$4060 per hectare in 2007/08. This was due to significant improvements in prices and in spite of increasing costs and reduced yields.

Process potato growers supplying facilities in the South Island did not achieve any price increases in 2007/08 to buffer the rising costs of inputs. Gross margin per hectare therefore fell to \$2330, 22 percent less than in 2006/07.

The growing season was a difficult one for potato growers in the North Island and as a result, yields were down and growers struggled to meet demand from both retailers and processors. Lower spring temperatures affected tuber set in some regions, and many potato crops were also affected by the summer drought. Lack of water, especially during tuber setting, resulted in lower yields and some crop failures. Yields for the fresh potato market were down 18 percent to an average of 37 tonnes per hectare in 2007/08 compared with an average yield of 45 tonnes per hectare in the previous year.

As a result of the relatively short supply to the market, prices were much better than previous seasons. The price growers received for their fresh potatoes lifted 73 percent to an average of \$570 per tonne, ranging from \$300 to \$800 per tonne during the season. The dry conditions increased the incidence of potato scab disease, which affects skin finish. Consequently, washed potatoes (which require good skin finish) were in particularly short supply, fetching \$800 per tonne. Potatoes grown for processing without firm contracts were not diverted in significant quantities to the fresh market, which helped maintain fresh market prices at higher levels.

Potatoes grown for processing in Canterbury achieved similar yields to 2006/07 (60 tonnes per hectare).

The cost of leasing land for potato production is increasing as a result of competition from the arable and dairy sectors, particularly in the Canterbury region. Lease costs increased by 15 to 20 percent in 2007/08 to \$2000 per hectare. Further increases are expected for the 2008/09 growing season. Potato growers in the region will be seeking a significant increase in returns to enable them to compete for leased land.

Potato growers, along with other growers, faced increased costs of production in 2007/08. Increases have occurred in the price of seed potatoes, cultivation, fertiliser, agrichemicals, irrigation, harvesting and freight.

The volume of fresh potatoes exported from New Zealand to the year ended 31 March 2008 (including seed potatoes) was 26 853 tonnes, slightly down on the previous season. However, the value of these exports was significantly higher (14 percent) at \$15.6 million compared with an

export value of \$13.7 million in the previous season. Official export statistics indicate that the volume of processed potatoes exported was down 14 percent on the previous year. The value of these exports was \$64.3 million, down 18 percent on the \$78.3 million export value of the previous season².

Because seed potato production fell slightly in 2007/08, the area planted in potatoes in 2008/09 is likely to be very similar to 2007/08, despite the higher prices for fresh potatoes. Most seed potatoes are grown in the South Island and this bulky product must be shipped to the upper North Island, where most of the fresh crop is grown. Transport costs have increased by 8 to 10 percent in the past year, so growers are expecting to pay more for their seed potatoes in 2008/09.

The seed potato industry is looking at expansion opportunities, including exporting to Asia, North Africa and the Middle East where New Zealand can supply product on the shoulder of the European season. Potato production and consumption is increasing in developing countries. The United Nations has declared 2008 the International Year of the Potato in an effort to raise awareness worldwide of the potential of the potato as a food source.

➤ ONIONS

The area planted in onions was estimated at 4912 hectares for the year ended 31 December 2007, up slightly on the previous year's planting.

The 2007/08 growing season was challenging for onion growers, with heavy rains washing away seed after planting and the summer drought impacting on bulb size where irrigation was insufficient to meet plant demands. For some growers, yields may have been down as much as 30 percent, leaving some export orders undersupplied.

The warm, dry conditions encouraged the build-up of onion thrip numbers at the end of the season but effective Integrated Pest Management programmes meant there was only a small incidence of thrip-related quality issues at packing. Overall, the quality of onions produced was good, assisted by the excellent weather over the harvest period. Packout rates were higher than usual, resulting in faster packing rates and a shorter season.

Market returns from both export and fresh domestic markets were down 20 percent on last season. Growers received an average of \$350 per tonne for their product in 2007/08, similar to the average price achieved in 2005/06. This drop in returns, together with increased input costs, reduced gross margins for Pukekohe growers to \$1585 per hectare compared with \$3620 per hectare in 2006/07. Canterbury process onion growers also experienced a reduction in gross margin, down 25 percent to an average of \$4940, due to reduced prices.

The volume of fresh onions exported from New Zealand to the year ended 31 March 2008 was 184 133 tonnes, with a value of \$109.1 million. This is an increase of 14 percent in volume and 10 percent in value over the previous year. The March year straddles two onion export seasons, and this increase in export value and volume is largely due to exports of the previous season's crop, exported in April to June 2007.

² Source: Statistics New Zealand. The export figures provided throughout this chapter are provisional. Some industry commentators believe that process potato exports increased in the year ended 31 March 2008 both in volume and by value.

› SQUASH

A total of 6700 hectares of squash was planted for the export market by 76 growers in the year ended 31 December 2007. This area is down 17 percent on the previous year but is not as low as in 2006, when only 6300 hectares were planted. The most significant reduction in planted area occurred in the Manawatu, with growers responding to the opportunities offered by the dairy sector.

Despite the dry conditions in all squash-growing regions apart from Gisborne, growers produced around 14 tonnes per hectare, a similar yield to last season. Some unirrigated crops in the Manawatu were ploughed in, as they were uneconomic to harvest.

An improvement in the average price to \$450 per tonne helped offset the increase in growing costs. Gross margins averaged \$1045 per hectare, a slight increase on 2006/07.

The volume of squash exported from New Zealand to the year ended 31 March 2008 was 103 690 tonnes, with a value of \$71.2 million. This is a 2 percent reduction in volume but an increase of 11 percent in value. Competition for land use is likely to reduce future export volumes from the highs of recent years.

› GREENS

Reduced prices and high input costs in the 2007/08 season have left growers of broccoli and cauliflower unable to cover their direct costs of production. Reduced market demand for green vegetables over the season put downward pressure on prices. Cauliflowers achieved \$8.50 per crate compared with \$10.00 in 2006/07 and broccoli achieved only \$11.90 per crate, compared with \$16.00 last year. Lettuce prices were down by 3 percent.

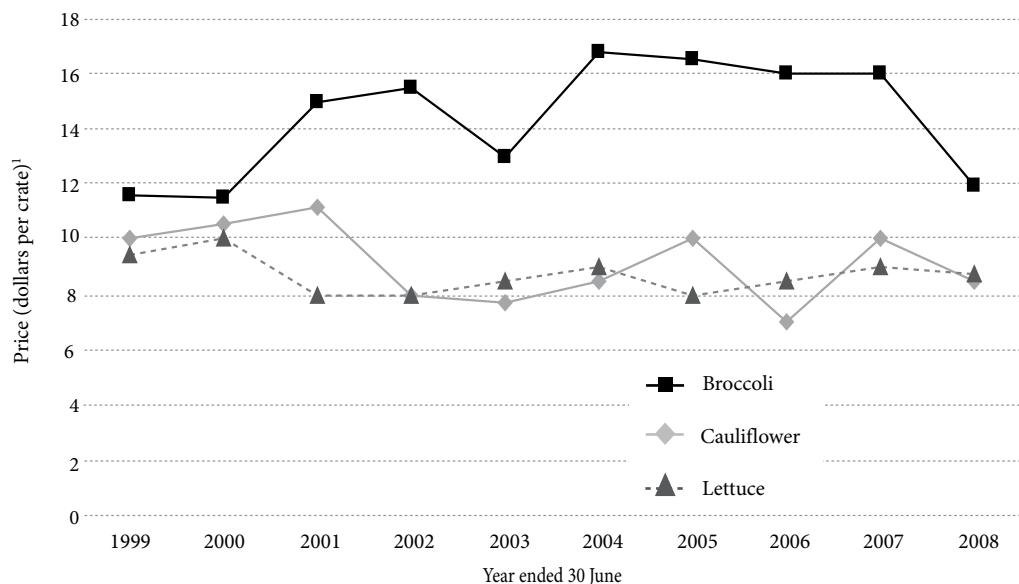
Grower prices for cauliflower have fluctuated between \$7.00 and \$10.00 per crate in recent years whilst prices for lettuce have been more stable. Broccoli prices have exhibited an increasing trend overall in the past 10 years, but prices in the last five years have fallen (Figure 9.1). Gross margins for these crops have fluctuated more widely than prices, as illustrated in Figure 9.2, due to the combination of price and volume effects.

While the summer drought had some impact on production in 2007/08, most growers were able to irrigate their crops. The high summer temperatures resulted in a below-average shelf life for greens and lettuce crops, despite rapid cooling of crops after harvest.

Pest levels were high in some crops due to the warm summer conditions. Integrated Pest Management programmes for greens have generally given good pest control, except for some instars³ of Green Looper Caterpillar and Diamond Back Moth infestations in brassica crops.

³ The term "instars" refers to the stages in development of an immature insect between successive moults.

»» FIGURE 9.1: TRENDS IN GREEN VEGETABLE PRICES, 1999–2008



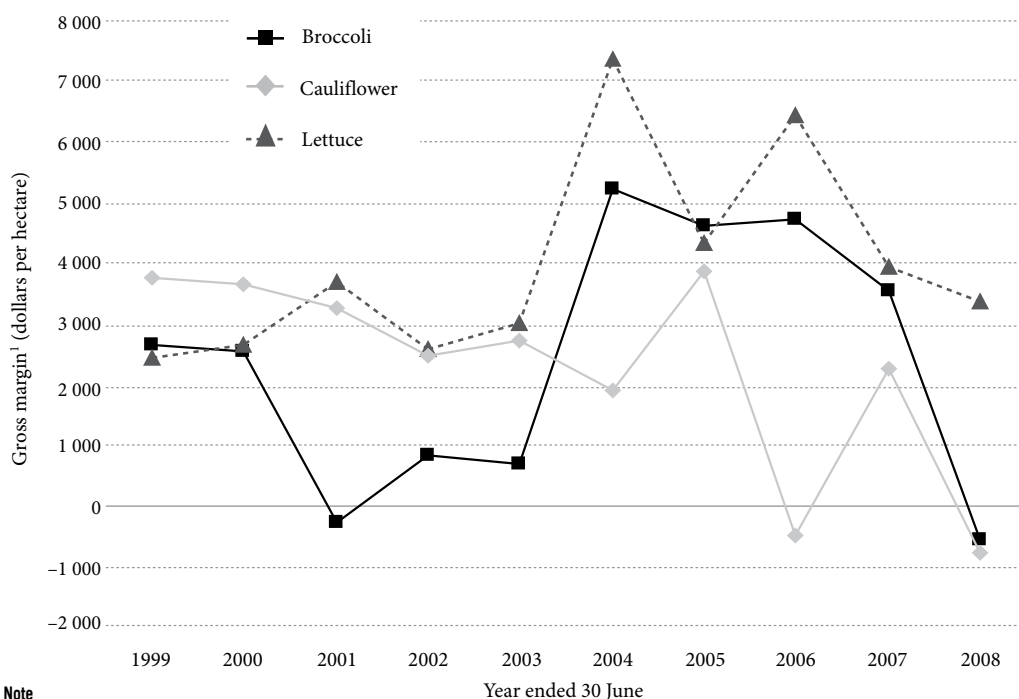
Note

¹ Prices are expressed in nominal terms.

Sources

MAF Monitoring Reports; 2003 to 2008.

»» FIGURE 9.2: TRENDS IN GROSS MARGINS FOR GREEN VEGETABLES, 1999–2008



Note

¹ Prices are expressed in nominal terms.

Sources

MAF Monitoring Reports; 2003 to 2008.

➤ ASPARAGUS

The cropping area of asparagus remained at 690 hectares in the 2007/08 production season. The producing area is forecast to decrease for the 2008/09 season, as growers pull out older, less economic beds and move into more profitable land uses. Most of the producing area is now in the southern North Island, whereas six years ago the Waikato dominated the production area. There are now less than 200 hectares grown in the Waikato.

Asparagus yields dropped on the previous season, largely due to a cool spring and the ageing of the beds. Industry average yield is now around 3.6 tonnes per hectare. Average prices also dropped in 2007/08, to \$2.15 per kilogram. A combination of reduced yields and prices and increased input costs resulted in a 29 percent reduction in gross margin for asparagus growers, to \$1505 per hectare in 2007/08.

The volume of fresh asparagus exported for the year ended 31 March 2008 was 382 tonnes, with a value of \$2.5 million. This is a 31 percent reduction in volume and value compared with the same period last year. The volume of fresh exports has fallen from over 1410 tonnes in 1999/2000 to 382 tonnes in 2007/08 as a result of declining profitability, in part due to the high value of the New Zealand dollar relative to the Japanese yen, and the cost of airfreight. Export volumes are now at similar levels to domestic market volumes.

➤ CARROTS

Growers reported below-average yields in 2007/08, with returns unable to cover the costs of production.

For the year ended 31 March 2008, a total of 9400 tonnes of carrots were exported, up by 8 percent on the previous season. However, the value of these exports was down 4 percent to \$6.2 million, primarily due to the high exchange rate.

➤ PROCESS CROPS

The gross margin for process peas increased slightly in 2007/08, despite similar yields and product prices to last season. The increase was due to the higher return generated from baled pea vines sold for stock feed. Sweetcorn growers generated a gross margin slightly down on last season, due to higher growing costs.

The growing season was considered good by most process growers. Gisborne had an excellent season, with regular rainfall at optimal stages for the crops. Some pea yields suffered in the dry conditions in Canterbury and Hawkes Bay, and hot, dry conditions led to more bypasses⁴ than usual in these regions.

⁴ Crops considered unsuitable for processing (for example, due to advanced maturity) are "bypassed", that is, not harvested.

High fertiliser costs (with urea approaching \$1000 per tonne during 2007/08) increased growers' use of nutrient budgets, particularly when assessing crop needs for nitrogen.

The number of growers continues to decline, especially in Canterbury. Changes in the location and capacity of processing plants are also continuing. The McCains Timaru factory closed in 2008, while the Timaru Concentrators carrot juice factory announced plans to expand processing from 20 000 to 120 000 tonnes. Cedenco in Gisborne is spreading its catchment radius for sweetcorn. A start-up pea processor in Hawkes Bay went into receivership during the year.

Many process growers are reviewing their crop mix, given the improved income potential from arable crops (such as wheat) or from dairy grazing. With the increased competition for land, processors are being forced to source crops at a greater distance from the processing facility, which reduces the gross margin more distant growers are able to generate. Growers are putting pressure on the processors to lift the price they pay for produce in 2008/09. However, the high value of the New Zealand dollar and lower costs of production in some countries make importing produce for processing relatively cheap. Both sweetcorn and asparagus, for example, were imported for processing in New Zealand in 2007/08.

Growers of sweetcorn are increasingly concerned about how to manage growing infestations of grass weeds. Infestations of witch grass, summer grass and broomcorn millet are worsening and spreading into new areas.

The total volume of process vegetables (excluding potatoes) that were exported from New Zealand increased by 13 percent to 124 700 tonnes in the year ended 31 March 2008. The value of these exports increased by 10 percent, reflecting a price increase for some products, such as frozen peas, and a price reduction for others.

➤ COVERED CROPS

Producers of covered crops experienced escalating costs in freight, fuel, energy for heating and labour in 2007/08, with only slight increases in returns. Tomato prices ranged from \$2.90 to \$4.60 per kilogram over the season, with the lower returns for loose product and the higher returns for bagged and truss tomatoes. Growers consider that overall returns for the 2007/08 year were slightly higher than in 2006/07.

Tomato yields for the season have been average or above average due to increased temperatures during the summer. Only small volumes of tomatoes were imported from Australia helping to maintain steady returns for New Zealand growers. Market demand for speciality lines is increasing providing growers with the opportunity to increase returns via product and market segmentation.

Capsicum yields have varied across the country. In Auckland, summer yields were reduced due to high temperatures and low light levels at critical times, whereas South Island yields were slightly above average.



The value and volume of fresh tomato exports declined in the year ended 31 March 2008. Export volumes were down 28 percent to 2107 tonnes, but the value only dropped by 20 percent to \$6.2 million, reflecting the higher prices achieved.

Capsicum export volumes in the year ended 31 March 2008 were similar to the previous year, with 6313 tonnes exported. However, the value of these exports was reduced by 11 percent to \$30.9 million. The reduction in export value can be attributed to the high exchange rate and competition in the Japanese market from other exporters.

Exports of tomatoes and capsicums from New Zealand were suspended in June 2008 due to the discovery of a new bacterium infecting solanaceous plants. Certification started again in mid-July. At the time this report was compiled, Australia and Fiji are still prohibiting imports of New Zealand tomatoes and capsicums. MAF Biosecurity New Zealand is working with these countries to get market access reinstated.

Tomato and capsicum growers are reporting a difficult start to the 2008/09 year with increased import volumes driving down market prices.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» EXCHANGE RATE

Vegetable growers continue to struggle with the high value of the New Zealand dollar relative to many of our trading partners. Key markets for vegetable exports are Australia (particularly for process vegetables), the European Union (particularly for onions) and Japan. New Zealand's exchange rates against the currencies of these main markets were at historically high levels in the year ended 31 March 2008, peaking in the June 2007 quarter.

The high value of the New Zealand dollar is also making imported vegetables cheaper for retailers and processors. The value of fresh and process vegetable imports has increased by 40 percent over the past five years.

However, the strong New Zealand dollar during 2007/08 has provided a buffer against the high prices of imported oil, fertiliser and machinery.

» GROWER MORALE AND BUSINESS VIABILITY PLANS

Growers of most vegetable crops are considering their options due to ongoing poor returns. Options include arable crops such as wheat, maize and other grains, and subdivision for residential development around urban centres. The availability of other options for many growers means that morale is not as low as might be expected. A small number of very large vegetable businesses are gaining economies of scale.

Horticulture New Zealand, the horticultural sector's grower body, is in the process of preparing

cost of production models for many process crops that growers can use to make decisions regarding land use.

› GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

The Recognised Seasonal Employer (RSE) scheme is seen as a positive step to help the horticultural sector overcome the shortage of skilled labour. Some operators are adopting innovative strategies to minimise the fixed costs of employing RSE workers by sharing the workers with other horticultural industries. For example, some workers brought to New Zealand to begin the apple harvest moved into vegetable-growing regions as the apple harvest wound up.

This worked particularly well for large operators who have the capacity to cope with the administrative requirements, but some smaller businesses have found the scheme's administrative and pastoral care requirements complicated and costly. Growers hope that productivity gains can be achieved to offset the costs of the RSE scheme.

Growers are concerned about their ability to access inputs. In 2007/08, the major fertiliser companies were sometimes unable to supply certain fertilisers, due to international shortages, but were usually able to provide similar fertilisers. Growers are also concerned about ongoing access to water for irrigating crops, and are working with regional councils to ensure adequate supplies for the future.

› ENVIRONMENTAL AND RESOURCE MANAGEMENT

A range of environmental and resource management research is in progress in the vegetable sector, including:

- › the development of the sweetcorn and potato crop calculators, which enable growers to match water and nitrogen use to crop demand (the potato calculator was trialled by 18 growers in 2007/08);
- › the development of tools to manage nitrogen use across a range of horticultural crops;
- › irrigation efficiency trials in the Waikato and Canterbury regions.

Horticulture New Zealand has been a member of the primary sector's collaborative water initiative, the Primary Sector Water Partnership, which released its *Leadership Document* in June 2008. The document sets out a collective action plan and includes specific targets for the horticultural sector. These include extension of the Overseer⁵ model to improve horticultural nutrient management, targets for uptake of the Overseer[®] model, the potato crop calculator and the GROWSAFE calculator⁶ by growers, and extension of irrigation efficiency and management tools.

The New Zealand Good Agricultural Practice (GAP) scheme continues to develop and extend its membership, and currently covers 80 percent of domestically marketed produce. The scheme is an audited quality assurance programme that includes aspects of environmental management.

5 The Overseer[®] software was developed in New Zealand. It is used for nutrient budgeting and assists in nutrient and environmental management.

6 The GROWSAFE calculator predicts the environmental fate of agrichemicals and is used to better select and manage agrichemicals.

OTHER EXPORT FRUIT

10

»» KEY POINTS

- › Financial performance in 2007/08 improved across a number of the fruit crops covered in this chapter, as prices and/or yields increased sufficiently to offset increased production costs. However, high exchange rates constrained export returns, especially for those crops traded in US dollars.
- › Record volumes of avocados and cherries were produced and exported in 2007/08.
- › The 2007/08 summer was dry in many regions, which sometimes reduced fruit size but also enabled timely harvest of high-quality crops.
- › Higher wage rates and fuel costs are eroding growers' margins, both directly and through increased prices for other inputs. Growers expect further cost increases in 2008/09.
- › Industry groups are working hard to develop new markets, progress research into new varieties and sustainable production, satisfy market-access requirements, and improve product differentiation.

»» FINANCIAL PERFORMANCE OF OTHER EXPORT FRUIT IN 2007/08

The gross margins in Table 10.1 provide an indication of returns per hectare in 2007/08 for the export crops listed.

»» TABLE 10.1: OTHER EXPORT FRUIT GROSS MARGINS^{1,2} 2006/07 AND 2007/08

EXPORT FRUIT CROP	2006/07			2007/08		
	PRICE (\$/t)	YIELD (t/HA)	GROSS MARGIN (\$/HA)	PRICE (\$/t)	YIELD (t/HA)	GROSS MARGIN (\$/HA)
Avocados	2 880	3.4	4 370	1 350	9.5	5 700
Blueberries – fresh	10 340	7.5	30 470	9 300	7.0	23 105
Blueberries – frozen	7 000	3.0	13 730	7 000	3.0	13 460
Blackcurrants	1 000	7.0	2 600	1 240	7.0	3 690
Strawberries	4 250	25.2	27 190	4 180	29.9	31 460
Boysenberries	2 010	15.4	10 540	2 160	16.0	11 125
Apricots	3 580	20.0	37 200	4 600	22.0	43 885
Cherries	12 340	5.9	30 850	12 530	6.5	40 300
Persimmons	2 340	16.0	5 500	2 275	21.5	4 900
Lemons	500	40.0	6 350	1 080	35.0	20 500
Mandarins	1 000	25.0	13 200	1 120	28.0	12 600

Notes

1 The gross margin calculates the revenue less direct expenses for growing, harvesting and marketing the crop. It does not take account of overheads such as administration, debt servicing, tax, drawings or development and capital spending. These figures vary considerably, due to individual differences such as varieties and yields. For growers producing solely for the domestic market, the gross margin may be considerably different. The gross margin is for an export-oriented grower, but includes returns generated on the local market from fruit not suited to export.

2 The gross margins presented in the table are for the year ended 31 March, except for avocados, where the margin is for the year ended 30 June.

Sources

Avocado Industry Council, Blackcurrants New Zealand Ltd, Blueberries New Zealand (Inc.), New Zealand Boysenberry Council, Fruition Horticulture (BOP) Ltd, Lynda Hawes and Strawberries New Zealand (Inc.).



The financial performance of a number of export fruit crops¹ covered in this chapter improved in 2007/08 as prices and/or yields increased sufficiently to offset increased production costs. All sectors reported higher production costs due to price rises. Costs have increased for fuel and labour, and these increases have flowed on indirectly to higher prices for many other inputs.

Export earnings for several fruit crops increased in the year ended 31 March 2008, including avocados, blackcurrants, cherries, and citrus (Table 10.5). This was a result of higher export volumes and in some instances, higher prices.

➤ AVOCADOS

Significantly higher yields meant the avocado gross margin achieved in 2007/08 was 30 percent higher than in the previous season, despite lower prices and export packouts.

The dramatic increase in average yields, together with an increase in bearing area, lifted the total tonnage produced in 2007/08 to a record level of 26 766 tonnes, exceeding that of the previous record year of 2005/06 by 17 percent.

The industry had forecast the high volume of avocados in 2007/08 and made marketing and flow plans to manage it, which operated well. Total export receipts increased markedly, but the free on board (FOB) price per kilogram fell from \$5.16 in the year ended 30 June 2007 to \$3.33 in the year ended 30 June 2008.

Around 20 percent of export fruit was sold in the US in 2007/08. Few sales of New Zealand avocados have historically been made to the US since 2002/03 due to poor returns and shortages of New Zealand fruit for export in some seasons. However, this season, frosts in California and Chile reduced the supply of avocados to the US market, which created a gap for New Zealand fruit.

Exports to the US in 2007/08 took volume pressure off the key Australian market, so that volumes exported to Australia were below the high 2005/06 levels, and prices were able to be maintained at reasonable levels.

Development of the Japanese market for New Zealand avocados is continuing, with around 6 percent of export avocados sold there in 2007/08.

The high volumes of fruit led to oversupply on the domestic market. This meant that domestic market returns were poor throughout most of 2007/08.

Export packouts for the 2007/08 crop averaged 55 percent, a little lower than the average over the past 12 years of 58 percent, but well up on the 47 percent achieved in 2006/07. Several avocado orchards were damaged by the severe storm that hit the Whangarei area in July 2007, just as the fruit were nearing harvest. The proportion of

¹ Export fruit crops commented on in this chapter include avocados, cherries, apricots, persimmons, mandarins, lemons, blueberries, blackcurrants, strawberries and boysenberries. In recent years, each of these fruit crops has achieved annual export sales valued at over \$2 million. Most of these crops have specialised climatic and soil requirements, ranging from the subtropical (for example, avocados in Northland) and temperate (for example, boysenberries in Nelson) through to those crops preferring a more continental climate (such as summerfruit in Central Otago). Key features of these crops and their export volumes and values, products and marketing may be found in Tables 10.4 and 10.5 at the end of this chapter.

export fruit for this region was about 40 percent compared with 55 percent nationally. The dry summer in the main growing regions provided a good harvest season for avocados and contributed to low levels of post-harvest diseases. However, fruit blemished by sunburn made up a higher-than-average proportion of rejects during 2007/08 due to the hot, dry growing season and reduced leaf cover on heavily cropping trees.

Export grade standards for skin blemish were stricter for the 2007/08 avocado export season, which reduced some growers' packouts. The stricter grade standards were in response to market feedback and reverted to standards used a few seasons earlier. More packhouses installed water blasting jets to clean fruit as part of their packing process for the 2007/08 season, which worked well.

Avocado oil production increased substantially in 2007/08 and provided a useful outlet for low-grade fruit with cosmetic blemishes, but at very low returns to growers. The fluctuating volumes of avocados available for oil extraction from one season to the next (due to biennial bearing) creates business development difficulties for the avocado oil industry.

Avocados are continuing to exhibit a biennial bearing pattern, where a low crop follows a heavy crop. Fruit set indicates that the crop to be harvested in 2008/09 will be significantly down on the large 2007/08 crop, although Northland had a generally better fruit set than the Bay of Plenty. In the Bay of Plenty, informal estimates put the 2008/09 crop at around 70 percent of the average fruit set, which is better than the last "off-year" crop in 2006/07 of 50 percent of the average fruit set. The dry summer may have contributed to the low fruit set for 2008/09, particularly in the Bay of Plenty, where fewer orchards are irrigated.

Not all avocado orchards are bearing biennially, but the pattern of carrying alternate heavy and light crops has become more marked in the past four seasons. Biennial bearing is an international problem, and research is underway in New Zealand and overseas to better understand the causes and to develop management options.

An estimated 250 hectares of avocados were planted in 2007/08, down from the 350 to 400 hectares per year typical from 2000/01 to 2005/06.

› EXPORT BERRYFRUIT

BLUEBERRIES

Gross margins for both fresh and frozen blueberries fell in 2007/08 compared with the previous season. Lower prices and yield and increased production costs led to a reduction in the gross margin for fresh blueberries of 24 percent compared with 2006/07. Prices and yield were steady for frozen blueberries, but increased input costs eroded the gross margin by 2 percent.

Despite increased worldwide demand, export prices for fresh blueberries from New Zealand were lower over the entire 2007/08 season, due to competition from Chilean fruit. In response, volumes of fresh blueberries exported from New Zealand decreased in 2007/08 for the first time in four years. Chile placed record volumes of sea-freighted fruit into New Zealand's traditional markets in the US and Japan, achieving more consistent quality than in previous years. Chilean fruit commanded a return as low as US\$10 per tray² FOB over several weeks. Other large South East Asian markets also received record volumes of Chilean fruit. The plentiful supply of fresh blueberries from Chile at competitive prices reduced demand for New Zealand blueberries in markets that New Zealand exporters had previously worked to develop.

Sales directly to overseas retailers are of increasing importance to New Zealand growers of fresh blueberries. High-end quality-conscious retail groups have elected to stay with New Zealand air-freighted blueberries. Trials of shipping fresh blueberries by sea container have been discontinued and no commercial shipments were undertaken in 2007/08. New Zealand blueberries need to command high prices to achieve sufficient returns to growers, so the export focus remains on very high-quality air-freighted export blueberries.

The Australian market became an even more important outlet for fresh New Zealand blueberries in 2007/08, taking almost 40 percent of the volume exported, compared with 27 percent in 2006/07.

Dry weather resulted in exceptionally good fruit quality through the 2007/08 harvest season for both fresh and frozen blueberries, avoiding the usual disease problems associated with wet weather. A small reduction in total yield was more than offset by the increase in the proportion of the crop that was marketable. The drought had little impact on production of early and mid-season varieties. Yield was reduced by about 5 percent for later-season "Rabbit Eye" varieties, mainly due to smaller berry size. Despite the dry growing season, canopy growth has been adequate to sustain production for the next growing season.

The area planted in blueberries continues to expand, although this is due to new plantings by the two largest operators in the industry, rather than by new growers.

BLACKCURRANTS

The gross margin for blackcurrants improved 42 percent in 2007/08, as higher international prices for the fruit more than offset increases in input costs.

An average price for the 2007/08 crop of \$1.24 per kilogram is expected, up from \$1.00 per kilogram last year. Growers expect full payment for the 2007/08 crop by the end of the 2008 calendar year.

The higher prices were in response to frost damage to the Polish blackcurrant crop. International stocks of frozen blackcurrants were low at the start of the New Zealand selling season, creating the opportunity for sales of New

2 A tray consists of 12 punnets, each weighing 125 grams, that is, 1.5 kilograms overall.



Zealand product at higher prices. Markets developed in 2007/08 offer the opportunity for ongoing sales of New Zealand blackcurrant products.

Sales of New Zealand blackcurrants improved in Japan during 2007/08. The Japanese market buys both block-frozen blackcurrants of specified grade for manufacturer requirements and individually quick frozen (IQF) fruit for functional foods³.

Some buyers pay more for product that meets specific quality standards (for example, a measure of sweetness) and some prefer particular varieties.

The New Zealand blackcurrant crop yielded less than the expected 10 000 tonnes in 2007/08 due to frosts in some areas. Total production in 2007/08 was 9500 tonnes, slightly lower than the 9920 tonnes produced the previous year. October frosts in Nelson and coastal Canterbury cut expected production by an estimated 2000 to 2500 tonnes. Growers unaffected by frost have achieved average yields of 7 tonnes per hectare.

STRAWBERRIES

The gross margin for strawberry production increased by 16 percent in 2007/08 compared with the previous season, due mainly to higher yields. Average yields per hectare increased by 19 percent compared with 2006/07. Overall prices were in the order of \$5.15 per kilogram for the season on a weighted average basis (covering both export and domestic sales), slightly down on last season.

Strawberry growers' export returns were slightly higher than last season, typically around \$15.50 per tray. Only three to four shipments were sent to the traditional US market due to the unfavourable exchange rate. A much greater proportion of strawberry exports were sent to Asian markets. Domestic prices for fresh strawberries were satisfactory from the start of the harvest season in October, but fell significantly in December due to the high peak fruit supply.

Strawberry growers are also experiencing cost increases, which growers estimate has added around 10 percent to their production costs. Packaging costs are up by 5 to 10 percent and agrichemicals by 10 to 15 percent. Wages and contractors' charges have also increased, as has the cost of the low-density polyethylene the plants are planted through. The royalty paid to New Zealand Berryfruit Propagators for licensed plant material increased by 20 percent (from \$20.00 to \$25.00 per 1000 plants). Growers anticipate further cost increases following the increase in the minimum adult wage from 1 April 2008.

³ A food can be regarded as functional if it has beneficial effects on target functions in the body beyond nutritional effects, in a way that is relevant to health and well-being and/or the reduction of disease. See Diplock, AT; Aggett, PJ; Ashwell, M; Bornet, F et al (1999). Scientific concepts of functional foods in Europe: Consensus document. *British Journal of Nutrition* 81, suppl 1, S1–S28.

Growers are maintaining margins by maximising productivity and seeking efficiencies, particularly in their use of labour. Labour comprises a large proportion of strawberry production costs.

Very wet conditions in July 2007 concerned strawberry growers, as developing plants were growing in wet soil conditions for several weeks, which made them susceptible to disease. However, plants recovered well from the winter and plant losses and productivity were similar to the usual levels. Auckland growers otherwise had a normal growing season, with no other significant climatic limiting factors or effects on growth and production.

Waikato strawberry growers experienced the worst drought conditions in 50 years. Although strawberries are grown with under-plastic drip irrigation, this was insufficient to deal with high soil and ambient air temperatures. Strawberry plant development and growth ceases above 26 degrees centigrade, and soil temperatures at plant root depth were peaking at 30 degrees centigrade by late January 2008. The high temperatures caused the Waikato strawberry season to end a month early, at the end of January.

Some growers are altering the range of varieties planted to reduce a production peak in the first 10 to 20 days of December. During this period, the most widely planted variety, Camarosa, achieves a significant production peak, which depresses prices. Camarosa dominates New Zealand strawberry plantings, occupying about 75 percent of the producing area. Planting of the varieties Camino Real and Ventana continues to increase. Ventana produces earlier in the season, enabling higher early prices to be captured. However, the variety has a tendency to produce small late-season fruit and is susceptible to root rot disease. The variety Pajaro is declining in area, as other varieties have better overall performance characteristics.

BOYSENBERRIES

The boysenberry gross margin increased modestly in 2007/08, as the higher prices and yields compared with 2006/07 more than offset higher input costs.

Production of boysenberries has increased because new higher-yielding plantings are reaching maturity, with about 1000 tonnes of extra crop available for marketing in 2007/08. Spring frosts reduced the yield potential of some crops but the dry summer resulted in good fruit quality and a high proportion of berries were saleable. The overall impact was slightly higher production than in 2006/07.

Based on observations made during early cane tying, production potential for the 2008/09 season is not expected to be adversely affected by the dry growing season in 2007/08.

➤ SUMMERFRUIT

The growing season for export summerfruit regions was generally good, and cherries had a record season, aided by dry weather over harvest. However, cold spring conditions reduced pollination of apricots and therefore reduced fruit volumes for export (Table 10.2). The dry harvest period was good for summerfruit generally and resulted in an excellent crop with good colour, fruit finish and taste. The dry conditions meant disease pressure was low, so

fruit travelled and stored well and was of good eating quality on arrival in overseas markets.

Local demand for summerfruit was strong and prices were good throughout the season, attracting some fruit that may otherwise have been exported. This was due to low fruit volumes from Hawkes Bay, which produces summerfruit for the domestic market, particularly peaches and plums. The Hawkes Bay crop was affected by a severe spring frost.

Summerfruit export registrations for 2007/08 showed a significant reduction in the number of market-specific crop management programmes. Many growers only registered for one programme to reduce costs, when they may have registered for three programmes in previous years.

Details of production and export volume sales from 2005/06 to 2007/08 are provided in Table 10.2.

APRICOTS

Total production of apricots dropped by 32 percent compared with 2006/07. Low spring temperatures caused poor pollination in Roxburgh, which is the origin of about 60 percent of New Zealand's export apricots. Growers in most other areas had a favourable season, and the improved gross margin in this report reflects their outcomes with higher yield and prices. Exporters reported that they could have sold more apricots if they had been available. Prices were high, fruit quality was good and sales in most markets went well. The UK market was not significant in 2007/08.

»» TABLE 10.2: APRICOT AND CHERRY SALES, 2005/06–2007/08

	APRICOTS			CHERRIES		
	2005/06	2006/07	2007/08	2005/06	2006/07	2007/08
Export volume (t)	941	1 872	952	780	656	1 307
Domestic volume (t)	2 254	2 902	2 281	842	684	797
Total volume (t)	3 195	4 774	3 234	1 622	1 340	2 104
Percentage export	30	39	30	48	49	62
Percentage domestic market	70	61	70	52	51	38
Export value (\$000 FOB ¹)	4 568	8 959	4 961	8 991	8 061	15 939

Note

1 Free on board.

Sources

Statistics New Zealand, Summerfruit New Zealand.

Small fruit was not a problem in 2007/08. However, the closure of the Roxdale cannery in 2007 will make it difficult for growers to find an outlet for small or blemished fruit in the future.

CHERRIES

Cherries returned a higher gross margin in 2007/08, following a good growing season and a dry harvest period (the first in four years). Yields and prices were higher and more than offset increased input costs. The tonnage of cherries exported was the largest recorded, at 1307 tonnes, and double the level of 2006/07. Good fruit quality and high prices encouraged the export of a high proportion of fruit, with 62 percent of the crop exported compared with 49 percent the previous year (Table 10.2).

Taiwan remains the largest export market, but markets in Korea and Thailand have also been developed at similar returns. Korea and Thailand together received over 30 percent of New Zealand's export cherries in 2007/08, whereas in 2002/03 Korea took less than 5 percent and sales to Thailand were too low to merit separate recording. Korea receives few other cherries when New Zealand fruit is available. Most of the growth in the cherry market in Thailand has occurred since the removal of tariffs in 2005 when the free trade agreement came into operation. Changes in Asian destination markets for cherries between 2002/03 and 2007/08 are shown in Table 10.3.

Western Australia continues to develop as a small but reliable market for New Zealand cherries. In 2007/08, 63 percent of cherries shipped to Australia went to Western Australia.

»» TABLE 10.3: ASIAN CHERRY EXPORT MARKET TRENDS

COUNTRY	2002/03		2007/08	
	KILOGRAMS	PROPORTION OF EXPORTS (%)	KILOGRAMS	PROPORTION OF EXPORTS (%)
Taiwan	604 477	85	672 827	52
Korea	27 630	4	236 693	18
Thailand ¹	–	0	180 519	14

Note

1 In 2002/03, exports to Thailand did not warrant recording as a separate item.

Symbol

– Amount too small to be expressed.

Source

Summerfruit New Zealand.

PERSIMMONS

Despite higher yields, persimmon gross margins fell in 2007/08 because the costs of production increased and fruit prices slightly decreased.

Good growing conditions meant persimmon export volumes in 2007/08 were 29 percent higher than in 2006/07, returning to the levels achieved in 2005/06. FOB prices fell from \$4.23 in the year ended 31 March 2007 to \$4.06 per kilogram in the year ended 31 March 2008.

Asian markets continue to be the most significant, particularly Thailand, but exports are also occurring to Australia and Canada. The modified atmosphere storage technology used by the industry enables sea freight to overseas markets and is also used to extend the flow of fruit onto the domestic market.

Production costs increased due to the rise in the costs of labour and fuel and their flow-on effect into other input price rises. Persimmons are a very labour-intensive crop.

At the time of writing, harvesting of the 2008 crop had not been completed but the industry is expecting an increase in export volumes of 10 percent compared with 2007/08.

› LEMONS AND MANDARINS

The gross margin for lemons increased in 2007/08 compared with the previous season because higher prices offset reduced yields and higher production costs. World market demand for lemons strengthened, as Californian and Chilean crops were reduced by frosts. Increases in yield and prices did not cover the higher production costs for mandarins, and so gross margins per hectare fell by 5 percent.

Exports help maintain domestic market prices by diverting fruit from the New Zealand market at peak supply times, such as from mid-May to mid-June for mandarins. During the 2007 mandarin harvest, Gisborne fruit matured a little earlier than usual, and Northland fruit matured a little later, resulting in a severe oversupply and low prices on the domestic market, particularly in May.

New Zealand Satsuma mandarins were exported in 2007/08 to the US and the UK, as well as to Japan. The unfavourable exchange rate meant returns were low, but exports continued in order to maintain relationships built up with importers, and to retain a presence in the market. Achieving the high sweetness required for Japan is difficult, but the Gisborne region produced suitable mandarins in good quantities in 2007/08 for the first time in several years.

In recent years, New Zealand has sent mandarins to the UK market and this went well in 2007. Fruit is shipped in June and takes 33 days, so it is a challenge to deliver fruit that is still of good quality on arrival. Mandarin marketers intend to supply fruit to the UK market again in 2008, despite the lower volume of fruit available from the later-season varieties.

Lemon production in 2008 is expected to be about the same as in 2007. Fruit finish (that is, skin appearance) should be good, as there has been little wind damage over the season. In orchards where irrigation was used through the dry summer, good fruit size and quality were achieved.



The 2008 mandarin crop was still being harvested as this report was being compiled. Most fruit from Northland matured too late to reach Japan in time for the “Golden Week” festival, so export returns are expected to be low. Wet weather in Gisborne in May delayed the harvest and reduced fruit quality. Yields in 2008 are likely to be lower than those achieved in 2007, particularly for the later-season varieties.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» GROWER MORALE AND BUSINESS VIABILITY PLANS

Grower morale is relatively low, due to pressure on returns from the exchange rate and increasing costs. However growers, exporters and industry bodies are actively engaged in export and local market development, and a range of research programmes, to improve business viability. Research and market development programmes are commonly funded by levies collected under the Commodity Levies Act 1990, and a comment is included in this section on the results of voting rounds for renewal of the blueberry and mandarin levy orders. Some growers are expanding to reap economies of scale.

EXCHANGE RATE STRATEGIES

Exporters are using a range of strategies to minimise the impact of unfavourable exchange rates. For example, strawberry growers are directing exports towards Asian markets where currency impacts are lower and air freight rates are more favourable than for exports to their traditional market in the US.

Growers may continue to export to a range of destinations despite marginal profitability, in order to maintain export relationships for the future and to divert peak production to take pressure off other export or domestic markets. However, the more stringent quality standards required to export fruit make the domestic market relatively attractive for some crops.

EXPORT MARKET DEVELOPMENT

Meeting conditions for market access and working to develop protocols to access new markets are key activities in all the export fruit industries reviewed. Work is progressing to gain access to the US market for persimmons, and work to allow access to China is underway. Arranging access to a new market is a multi-year process: the recently granted access for New Zealand citrus fruit to the US followed around six years of preparatory work.

The recent increase in boysenberry production will enable the main boysenberry marketing group, Berryfruit Export NZ Ltd, to capitalise on market development work carried out in Japan over several years. In the recent past, there has been insufficient volume of product to supply new markets in Japan and the UK without affecting sales to existing markets.

Improved prices and market prospects have increased blackcurrant growers’ confidence. Positive factors have included the reduction in northern hemisphere stocks, recovery of a key market brand after a product integrity issue was addressed, and development of new markets for blackcurrants in Japan and the UK. New Zealand Trade and Enterprise is supporting promotions and market development in Japan. There has been a small shift to

substitute blackcurrants for blueberries in international manufactured mixed berryfruit products, as manufacturers resist the high blueberry product price. This shift has benefited New Zealand blackcurrant growers without adversely affecting New Zealand blueberry growers, who struggle to fill frozen blueberry product orders.

DOMESTIC MARKET DEVELOPMENT

Industries are taking steps to promote their products on the domestic market. Avocados were showcased at the Katikati Avocado Food and Wine Festival, and the citrus grower body, New Zealand Citrus Growers Incorporated, arranged for lemons to be promoted at the “Savour New Zealand” food festival in 2007, which included a cooking demonstration featuring lemons. The first New Zealand blackcurrant festival was held in January 2008 in the Nelson region. Blackcurrants New Zealand Inc will achieve a high profile late in November 2008, when they host the first International Blackcurrant Conference in Christchurch.

RESEARCH PROGRAMMES

A number of the industries reported on are introducing new varieties as part of growers’ strategies for improving quality, productivity and customer satisfaction.

The New Zealand strawberry industry is importing the variety Albion into Level 3 quarantine in 2008, the first variety to be imported into New Zealand in six years. The University of California strawberry breeding programme is still progressing accreditation with MAF Biosecurity New Zealand that will allow the importation of material to New Zealand Level 2 quarantine facilities.

Five new blueberry selections were released to the blueberry grower body, Blueberries New Zealand Inc, for commercialisation at the end of 2007. Early indications are that these varieties, along with the previously released HortResearch variety Centra Blue, may form a significant part of the New Zealand industry. Centra Blue was bred by HortResearch for Blueberries New Zealand Inc and, under the current membership basis, the variety will only be available to members paying the voluntary levy. Now the breeding programme between Blueberries New Zealand Inc and HortResearch has ended, Blueberries New Zealand Inc is working to import from the US up to 12 new blueberry varieties that are not covered by Plant Variety Rights, which it will evaluate for New Zealand conditions.

Blackcurrants New Zealand Inc has a positive working relationship with HortResearch to develop a range of new material appropriate to commercial growers. Larger blackcurrant growers are committed to redeveloping older blocks of varieties that are less productive and less well suited to buyer specifications.

An increasing proportion of new avocado plantings are using clonal rootstocks, which are available only through exclusive nurseries for the first few years for each new variety.

New Zealand Citrus Growers Inc has adopted a “best practice” protocol for the propagation of citrus nursery trees by promoting the use of trees from certified citrus nursery tree propagators. The protocol focuses on producing trees that are genetically true to type for the variety and free of harmful pathogens.

The strawberry industry, with support from the MAF Sustainable Farming Fund, is investing in a three-year research programme to improve fruit quality throughout the supply chain. It will build on a preliminary research project that identified opportunities for quality improvement.

INDUSTRY LEVIES

In 2007, the Commodity Levy Order referendum for blueberries was lost when an insufficient proportion of the industry supported a compulsory levy. Blueberries New Zealand Inc has implemented a voluntary levy programme. Levies will be collected directly from growers on the basis of a grower declaration to Blueberries New Zealand Inc at the end of the 2007/08 season. Blueberries New Zealand Inc has set a conservative budget for the 2007/08 and 2008/09 years, in anticipation of lower levy income.

Growers of Satsuma mandarins voted early in 2008 to renew the commodity levy for their fruit, but at half the previous rate. Domestic mandarin promotion that has been running for a couple of seasons is one activity likely to be dropped due to the lower levy rate.

ECONOMIES OF SCALE

Production area is slowly expanding in the strawberry, blueberry and boysenberry industries, as key stakeholders increase their planted areas. For process blueberry growers, business profitability depends on having sufficient scale to justify the capital expenditure required for harvesting machinery.

Boysenberry area increased to an estimated 250 hectares with plantings in winter 2007. Further plantings are intended in winter 2008 in the key growing region of Nelson. There is no change in grower numbers, as plantings are being made by existing industry participants. Newer plantings have been made using varieties that have better performance characteristics.

➤ GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

The key input shortage affecting the export fruit sectors is labour for harvesting and crop husbandry. Changes in the Government seasonal work policy helped to address this issue but came into effect in mid-January 2008, after much of the export summerfruit crop had been harvested. As a result, a small number of Central Otago growers reported they were unable to obtain enough staff and a few growers reported having to leave fruit unharvested on the trees.

The new Recognised Seasonal Employer scheme was adopted by some strawberry growers in 2007/08. Growers who sourced workers under this scheme found that they worked hard to maximise their income, with resulting

increases in worker productivity. Other strawberry growers had difficulty securing sufficient labour in 2007/08 season, particularly at the peak of crop production.

New technologies are being used to attract and manage seasonal labour. Text messages to registered job seekers are being used in the summerfruit industry. Strawberry growers are implementing management systems such as barcoding and scanning, so that productivity rates can be better monitored and good information made available for pay negotiations and to help set contract harvest rates at appropriate levels.

Boysenberry growers had enough labour available to complete winter training and pruning. Current returns are sufficient to afford paying for the work to be done manually, which will achieve optimal winter canopy quality.

Blueberry growers rely heavily on seasonal labour to harvest, grade and pack their fruit. Limited availability of quality seasonal labour and the increased costs of employing labour are increasing harvesting and packing costs, particularly for fresh blueberry growers.

► ENVIRONMENTAL AND RESOURCE MANAGEMENT

INTEGRATED PRODUCTION METHODS

Integrated Pest Management techniques are widely used in the export fruit sectors and some of the research levy paid by growers is used to support research programmes in this area.

The boysenberry industry continues to support a research programme on Integrated Berry Production, focusing on the prediction and control of downy mildew, which is a major disease of boysenberries. Without fungicides, crop loss from downy mildew can be up to 80 percent. Further work is planned to explore the climatic conditions favouring fungal infection, with a view to refining the timing and number of fungicide applications. The research programme is supported by the MAF Sustainable Farming Fund.

The avocado industry is supporting research into alternatives to copper-based fungicides for the control of post-harvest fruit rots. Alternatives include biological controls, alternative fungicides and post-harvest treatments. MAF's Sustainable Farming Fund is supporting the project.

The summerfruit industry's research programme is focusing on residue-free production. Recent investment in area-wide mating disruption via pheromones, using a single lure active for three species of leafroller caterpillars, is proving to be a realistic and effective option.

The blueberry industry continues to self-fund its maximum residue limit testing programme on exported fruit. This programme may be extended to the domestic market for the 2008/09 season.



SOIL FUMIGATION

The 2007/08 production season was the last in which the fumigant gas methyl bromide was available. Most growers have switched to using the fumigant Telone® C35 to control soil-borne pests and diseases in strawberry production and nursery beds. A research project supported by MAF's Sustainable Farming Fund has helped to guide this major change for the industry.

The delay between applying Telone® C35 and planting the new strawberry plants is longer than for methyl bromide. Most production beds were removed as soon as possible at the conclusion of the 2008 fruiting season to accommodate the time delay recommended after fumigation. In some Waikato locations, fumigation was delayed several weeks due to dry ground conditions, which held up replanting. No adverse consequences are expected, as soil conditions after fumigation were good.

Options for the delivery of fumigants to the soil using irrigation drip lines laid under plastic are being investigated, with trials established in Auckland, the Waikato and Hawkes Bay on grower and research sites. Grower trials using Virtually Impenetrable Film (VIF) as an alternative to low-density polyethylene (LDPE) have successfully identified VIF as a cost-effective option. Even though the VIF costs more, the film holds the fumigant gas in the soil more effectively and allows fumigant rates to be reduced. Further work is trialling a thinner VIF plastic, which would cost less.

Registration of methyl iodide as a fumigant is still progressing. This product will be a valuable alternative fumigant gas to Telone® C35 in the medium term.

»» TABLE 10.4: FEATURES OF OTHER EXPORT FRUIT CROPS IN NEW ZEALAND IN 2007/08

EXPORT FRUIT CROP	ESTIMATED AREA (HA)	MAIN GROWING REGIONS	AREA IN MAIN REGIONS (%)	KEY HARVEST PERIOD	LIFESPAN (YEARS)
Avocados	5 246	Bay of Plenty, Northland	92	Sep–Mar	>20
Blueberries	470	Waikato, Hawkes Bay, Southland	85	Nov–Mar	>30
Blackcurrants	1 480	Nelson, Canterbury	100	Dec–Jan	>20
Strawberries	170	Auckland, Waikato	85	Nov–Jan	1
Boysenberries	240	Nelson	96	Dec–Jan	>15
Apricots	457 ¹	Central Otago, Hawkes Bay	90	Dec–Feb	>20
Cherries	520 ¹	Central Otago, Hawkes Bay	90	Dec–Feb	>20
Persimmons	180 ¹	Gisborne, Auckland, Northland	70	May	>20
Lemons	332 ¹	Northland, Gisborne	65	All year	>20
Mandarins	691 ¹	Northland, Gisborne, Auckland	85	Apr–Aug	>20

Note

¹ Area as at 30 June 2007.

Sources

Statistics New Zealand, Blackcurrants New Zealand Ltd, Blueberries New Zealand Inc, New Zealand Boysenberry Council, Lynda Hawes, Avocado Industry Council, Fruition Horticulture (BOP) Ltd.

»» TABLE 10.5: OTHER EXPORT FRUIT CROP VOLUMES AND VALUE, PRODUCTS AND MARKETING

YEAR ENDED 31 MARCH	EXPORTS 2006/07		ESTIMATED EXPORTS 2007/08 ¹		MAIN EXPORT PRODUCTS	MAIN EXPORT MARKETS	EXPORT MARKETING CHANNEL
	(t)	\$M FOB ²	(t)	\$M FOB			
Avocados	5 453	28.7	15 026	59.2	Fresh	Australia, US	Multi-exporter using HEA ³
Blueberries	977	15.1	884	13.4	Fresh, frozen	North America, Japan, Australia, UK	Multi-exporter (19), industry co-ordination
Blackcurrants	1 908	14.6	2 903	20.7	Frozen, then juice concentrated; innovative further processed products	Japan, Australia, South East Asia	Multi-exporter (6) using HEA
Strawberries	630	4.1	665	4.1	Fresh	US, Japan, Pacific and Asian markets	Multi-exporter
Boysenberries	1 086	5.7	994	3.9	Block frozen, IQF ⁴ , juice concentrate, puree	Japan, Australia, Scandinavia, US, Europe	Multi-exporter (4) using HEA
Apricots	1 916	8.9	943	4.9	Fresh	Australia, North America, EU	Multi-exporter using HEA
Cherries	664	8.1	1 296	15.9	Fresh	Taiwan, Korea, Thailand	Multi-exporter using HEA
Persimmons	1 459	6.2	1 881	7.6	Fresh	Thailand, Malaysia	Multi-exporter using HEA
Lemons	1431	2.9	1 826	4.1	Fresh	Japan	Multi-exporter
Mandarins	421	1.6	1 298	3.9	Fresh	Japan	Multi-exporter

Notes

1 Export values are provisional, based on the year ended 31 March 2008.

2 Free on board.

3 Horticultural Export Authority.

4 Individually Quick Frozen.

Sources

Statistics New Zealand, Avocado Industry Council, Blackcurrants New Zealand Ltd, Blueberries New Zealand (Inc.), New Zealand Boysenberry Council, Fruition Horticulture (BOP) Ltd, Lynda Hawes, Summerfruit New Zealand, Persimmon Industry Council.

MAIZE (WAIKATO)

11

»» KEY POINTS

- › Grain yields were down 5 percent and silage down 10 percent in 2007/08 due to the wet spring and dry summer.
- › The total area of maize grown increased by 20 to 25 percent in 2007/08.
- › Farmgate prices increased significantly due to high global commodity prices, a high dairy payout and the demand for feed during the drought.
- › Costs for both grain and silage rose 15 percent, mainly due to global increases in fuel and fertiliser prices.
- › The grain gross margin was 28 percent higher in 2007/08 than in 2006/07, while the silage gross margin was unchanged.
- › The forecast gross margin is expected to double for maize grain and increase by 139 percent for maize silage, due to higher product prices and a return to average yields.

»» FINANCIAL PERFORMANCE OF MAIZE IN 2007/08

The financial performance of maize grain and silage crops in 2007/08 was above average, due mainly to higher product prices.

»» TABLE 11.1: MAIZE GRAIN GROSS MARGINS¹

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
Yield (t/ha)	10.5	11.0	10.5	10.0	11.0
Price (\$/t)	270	275	295	365	475
Total costs (\$/ha) ²	2 126	2 178	2 385	2 742	3 414
Gross revenue (\$/ha)	2 835	3 025	3 098	3 650	5 225
Gross margin (\$/ha)	709	847	712	908	1 811

Notes

¹ Details of the gross margins are found in Table 11.3 at the end of this chapter.

² Lease land cost not included.

»» TABLE 11.2: MAIZE SILAGE GROSS MARGINS¹

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
Yield (kgDM/ha) ²	18 500	21 000	19 500	17 500	19 500
Price (\$/kgDM) "in the stack"	0.21	0.22	0.24	0.29	0.40
Total costs (\$/ha) ³	3 157	3 288	3 405	3 905	4 878
Gross revenue (\$/ha)	3 925	4 585	4 610	5 120	7 780
Gross margin (\$/ha)	768	1 297	1 205	1 215	2 902

Notes

¹ Details of the gross margins are found in Table 11.4 at the end of this chapter.

² DM – dry matter.

³ Lease land cost not included.



► YIELD

Grain yields were down from an average 10.5 tonnes per hectare to 10.0 tonnes per hectare (Table 11.1), and ranged from 7.0 to 13.0 tonnes per hectare. Silage yields were down 2.0 tonnes per hectare on average to 17.5 tonnes per hectare (Table 11.2), but ranged widely from 7.0 to 27.0 tonnes per hectare. Some grain crops were so moisture stressed that they were green-chopped and the silage fed directly to livestock or sold. This was the reason for the average silage yield being reduced more than the average grain yield.

Lower yields resulted from unfavourable weather during crop establishment and continuing into the growing season. High rainfall in September and early October delayed planting, which decreased yield potential. Furthermore, drought conditions during November to April reduced cob size and aborted kernels and, as a result, reduced yields.

Rainfall for Hamilton during the season from September to March was 310 millimetres compared with 575 millimetres in an average season (NIWA, Ruakura site). This was the driest year since rainfall records began in 1906. Similarly, Matamata's cumulative growing season rainfall was 390 millimetres compared with 625 millimetres in an average season.

Above-average solar radiation and heat units were experienced over the season. In normal years, there is sufficient moisture and it is a shortage of heat units that reduces yield.

Dry conditions at harvest made for faster grain drying, firm ground conditions, and an early finish to harvest.

Rust disease in maize was not an issue due to the hot, dry conditions. Shield beetle incidence increased due to favourable conditions for the pest, but was still only a minor issue overall.

► COSTS

Total growing and harvesting costs for 2007/08 maize grain and silage crops increased by 15 percent, mainly driven by fertiliser and fuel price increases.

Contractors' charge-out rates have increased to reflect fuel price increases and the costs of retaining skilled staff.

► GRAIN PRICES

Domestic maize grain contract prices rose 24 percent from \$295 per tonne in 2006/07 to \$365 for the 2007/08 season. Low stocks have driven spot market grain prices during June 2008 up to \$500 per tonne. The high demand for feed led to some maize grain residue (stover) being baled for feeding to dry stock, providing a bonus income stream for growers.

➤ SILAGE PRICES

Almost all silage crops are sold as standing crops, which avoids the growers having to cover harvesting and transport costs. Increasing dairy industry payouts and the dry weather ensured a high demand for supplementary feeds, with standing maize silage crop prices increasing by 25 percent to 20 cents per kilogram of dry matter on average. Some standing crop prices reached 25 cents per kilogram of dry matter near the end of the season.

➤➤ FORECAST FINANCIAL PERFORMANCE OF MAIZE FOR 2008/09

➤ WEATHER OUTLOOK

In its *Seasonal Climate Outlook for June to August 2008*, NIWA (May 2008) predicts above-average temperatures for the Waikato. Rainfall, soil moisture and stream flows are likely to be normal to above normal for the rest of the year. Therefore, average maize yields are forecast.

➤ PRICES AND MARKETS

Yield has a significant effect on gross margins. The predicted increase in yield will see a return to average yields, which will significantly improve gross margins in 2008/09.

The contract maize grain price is expected by growers to be \$475 per tonne for the 2008/09 crop, up 30 percent from 2007/08. The balance of world supply and demand remains tight and, with the domestic market in the same situation, the maize grain price is expected to stay at high levels for the short to medium term.

Forecast high dairy industry payouts, as well as the lingering effects of the drought, will continue the high demand for supplementary feed. Some people in the industry suggest the value of standing maize silage could increase 50 percent more than in 2007/08 to 40 cents per kilogram of dry matter.

➤ COSTS

Costs are expected to increase by 25 percent for both grain and silage crops, mainly for fertiliser and fuel-related expenditure items.

A nearly two-fold price increase for fertiliser has shocked many people, although the fertiliser companies have been warning of increases since late 2007. This increase is in direct response to global demand for fertiliser. Fertiliser price increases have added another \$450 per hectare of costs, equivalent to another tonne of yield. Urea and diammonium phosphate (DAP) are the most common fertilisers used by the maize industry. DAP has increased from \$833 per tonne in June 2007 to \$1412 per tonne in June 2008. Urea has increased from \$589 to \$921 per tonne over the same period. Fertiliser prices are expected to rise again before the end of 2009.

Diesel prices have risen from about \$1.00 per litre in June 2007 to \$1.80 in June 2008, and are expected to rise again to \$2.10 per litre in late 2008. In response, forecast costs for cultivation, planting, application, harvesting, stacking and drying have all increased.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» GROWER MORALE AND BUSINESS VIABILITY PLANS

Grower morale is positive because of increased demand and price expectations, but growers are wary of the forecast 25 percent cost increases. Unreliable yields due to climatic variation therefore impact directly on profitability more than previously experienced.

» GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Growers are very concerned about increases in fertiliser and fuel costs but are aware that global demand is driving these inputs. To remain viable, growers must accurately manage their crop. Growers will continue to match fertiliser use to crop needs and soil nutrient levels, and reduce cultivation passes. It is likely they will “mine” capital reserves of soil nutrients by applying less maintenance fertiliser in the short term.

» ENVIRONMENTAL AND RESOURCE MANAGEMENT

Arable growers typically only apply the amount of fertiliser that the crop will remove in soil nutrients. As described, fertiliser leaching and run-off should be further minimised as farmers apply less fertiliser than is actually required in response to high fertiliser costs. An updated version of the AmaizeN yield and nitrogen fertiliser forecaster tool for use by growers and industry, AmaizeN Lite, is scheduled for release over winter 2008. These nitrogen forecasting tools produce nutrient budgets, which is a requirement of growers and farmers applying more than 60 kilograms of nitrogen per hectare per year in areas controlled by Environment Waikato.

»» TABLE 11.3: MAIZE GRAIN GROSS MARGINS¹

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
EXPENDITURE					
Spraying out ² (\$/ha)	54	54	54	54	93
Cultivation (\$/ha)	200	210	220	310	350
Lime ² (\$/ha)	36	36	38	38	40
Base fertiliser (\$/ha)	114	114	114	127	206
Planting (\$/ha)	88	100	100	110	135
Seed @ 90 000 ha (\$/ha)	290	290	290	300	340
Seed treatment (\$/ha)	113	113	113	126	132
Starter fertiliser (\$/ha)	145	145	145	208	353
Weed control ² (\$/ha)	163	151	145	140	152
Nitrogen side dressed ² (\$/ha)	181	181	186	215	366
Redrilling annual ryegrass (\$/ha)	120	135	155	190	240
Total growing costs (\$/ha)	1 384	1 394	1 405	1 659	2 167
Interest on inputs for eight months (\$/ha)	74	79	84	105	130
Harvesting (\$/ha)	310	320	335	335	402
Cartage (\$/ha)	137	143	147	198	220
Drying (\$/ha)	221	242	414	445	495
Total harvest costs (\$/ha)	668	705	896	978	1 117
Total costs (\$/ha)	2 126	2 178	2 385	2 742	3 414
REVENUE					
Yield (t/ha)	10.5	11.0	10.5	10.0	11.0
Price (\$/t)	270	275	295	365	475
Gross revenue (\$/ha)	2 835	3 025	3 098	3 650	5 225
Gross margin (\$/ha)	709	847	712	908	1 811

Notes

1 Lease land cost not included.

2 Includes cartage and application.

»» TABLE 11.4: MAIZE SILAGE GROSS MARGINS¹

YEAR ENDED 30 JUNE	2004/05	2005/06	2006/07	2007/08	2008/09 FORECAST
EXPENDITURE					
Spraying out ² (\$/ha)	54	54	54	54	93
Cultivation (\$/ha)	200	210	220	310	350
Lime ² (\$/ha)	100	100	110	110	120
Base fertiliser (\$/ha)	271	271	271	341	462
Planting (\$/ha)	88	100	100	110	135
Seed @ 100 000 ha (\$/ha)	305	305	322	332	358
Seed treatment (\$/ha)	125	125	125	140	145
Starter fertiliser (\$/ha)	145	145	145	208	400
Weed control ² (\$/ha)	163	151	145	140	152
Nitrogen side dressed ³ (\$/ha)	181	181	186	246	366
Redrilling annual grass (\$/ha)	120	135	155	190	240
Total growing costs (\$/ha)	1 752	1 777	1 833	2 181	2 821
Interest on inputs for six months ⁴ (\$/ha)	70	76	82	104	127
Market value of standing crop (\$/kgDM) ⁵	0.14	0.15	0.16	0.20	0.30
Harvesting (\$/ha)	410	450	450	485	625
Innoculant (\$/ha)	205	205	250	270	280
Cartage (\$/ha)	400	440	440	475	615
Stacking/rolling/covering (\$/ha)	320	340	350	390	420
Total harvest and stacking costs (\$/ha)	1 335	1 435	1 490	1 620	1 930
Total costs (\$/ha)	3 157	3 288	3 405	3 905	4 878
REVENUE					
Yield (kgDM/ha)	18 500	21 000	19 500	17 500	19 500
Price (\$/kgDM) "in the stack"	0.21	0.22	0.24	0.29	0.40
Gross revenue (\$/ha)	3 925	4 585	4 610	5 120	7 780
Gross margin (\$/ha)	768	1 297	1 205	1 215	2 902

Notes

1 Lease land cost not included. Most growers sell crop standing – buyer picks up harvesting, inoculant, cartage and stacking/rolling/covering costs.

2 Includes cartage and application.

3 Less nitrogen is used on silage paddocks than on grain paddocks if they have come out of long-term pasture (50 percent silage ex long-term pasture, 50 percent ex long-term cropping – most grain crops are ex long-term cropping).

4 The purchaser normally pays a deposit to the grower prior to sowing the crop of around \$700 per hectare. This would reduce interest costs by about half.

5 DM – dry matter.

APICULTURE

12

»» KEY POINTS

- › The financial performance of much of the apiculture sector improved in 2007/08 compared with 2006/07, due to a record honey crop and increased prices.
- › World honey prices increased over 30 percent compared with last year. This is because world supply reduced due to unfavourable weather in a number of exporting countries, the impact of Colony Collapse Disorder on hives in the US and increased domestic demand in most countries, including China and India.
- › Revenue from higher international honey prices was constrained by the unfavourable movements in the New Zealand exchange rate.
- › Live packaged bee exports to Canada rose 49 percent over last season, and live bee packages were also successfully exported to Germany.
- › Hive numbers increased by almost 10 percent in 2007/08, with little change in the number of beekeepers.
- › Higher wage rates and fuel costs have increased the cost of production for all operations.
- › In April 2008 varroa was found south and east of the Nelson Controlled Area. In September 2008 varroa was found in Canterbury. MAF Biosecurity New Zealand is currently reviewing the response to determine how to best respond to the new situation.

»» FINANCIAL PERFORMANCE OF APICULTURE IN 2007/08

The financial performance of the apiculture sector improved in 2007/08 compared with 2006/07, as a result of a record honey crop and higher prices for manuka honey, in particular (Table 12.1). All operations modelled showed increased earnings before interest and tax compared with 2006/07.

»» TABLE 12.1: INCOME AND EXPENDITURE FOR BEEKEEPING OPERATIONS, 2007/08

YEAR ENDED 30 JUNE	EXTENSIVE: 1000 HIVES (\$)	SPECIALIST HONEY: 700 HIVES (SOUTH ISLAND) (\$)	POLLINATION AND MANUKA HONEY: 700 HIVES (\$)	HIGHLY INTENSIVE HONEY, BEE PRODUCTS AND POLLINATION: 700 HIVES (\$)
Honey	182 400	139 650	174 040	96 800
Bee products	7 618	4 507	5 707	16 288
Pollination	0	0	90 132	73 080
Total revenue	190 018	144 157	269 879	186 168
Variable costs	139 908	92 921	164 211	104 313
Fixed costs	13 880	13 842	15 242	14 592
Total costs	153 788	106 763	179 453	118 905
EBIT ¹	36 230	37 394	90 426	67 263

Note

¹ Earnings before interest and tax.

Source

AgriBusiness Group, amended byASUREQuality Limited.

Beekeeping businesses with access to manuka honey and/or pollination contracts tend to be the most profitable. Those that produce only bulk honey are likely to be less profitable, except those producing higher-returning varietal honeys, such as ling heather, thyme and rewarewa.

► REVENUE UP

Revenue increased in all the business types modelled compared with 2006/07, due to increased production and improvements in world prices. However, the high value of the New Zealand dollar during 2007/08 tempered the gains from higher prices. The domestic market in New Zealand, which absorbs around 5000 tonnes of honey per year, is very competitive and there is little opportunity to lift prices significantly.

RECORD HONEY CROP

The New Zealand honey crop for 2007/08 is estimated at 12 375 tonnes, up 28 percent on the 2006/07 crop of 9666 tonnes, and 17 percent higher than the six-year average. This is a record crop for New Zealand and beats the previous best crop of 12 252 tonnes recorded in 2003.



►► TABLE 12.2: NEW ZEALAND HONEY CROP, 2003–2008

YEAR ENDED 30 JUNE	2003 (t)	2004 (t)	2005 (t)	2006 (t)	2007 (t)	2008 (t)	6-YEAR AVERAGE (t)
Northland, Auckland, Hauraki Plains	1 066	1 047	1 221	1 337	1 252	1 186	1 185
Waikato, King Country, Taupo	2 210	1 164	1 095	1 124	1 270	1 436	1 383
Bay of Plenty, Coromandel, Poverty Bay	2 064	2 052	1 498	1 937	1 897	2 492	1 990
Hawkes Bay, Taranaki, Manawatu, Wairarapa	1 607	1 330	1 440	1 935	1 912	2 755	1 830
Marlborough, Nelson, Westland	1 350	550	800	690	675	966	839
Canterbury	2 400	1 500	1 500	2 100	1 620	1 980	1 850
Otago, Southland	1 555	1 245	2 135	1 300	1 040	1 560	1 473
New Zealand	12 252	8 888	9 689	10 423	9 666	12 375	10 549
Yield/hive (kg)	40.8	30.2	33.1	34.7	30.7	36.0	34.3

Source
AsureQuality Limited.

Regional honey production data for the past six years is summarised in Table 12.2. Above-average crops were reported for the South Island, especially in Southland, Nelson-Marlborough, the West Coast and South Canterbury. Good yields were recorded in parts of the Waikato and King Country, the Bay of Plenty, Hawkes Bay, Taranaki and the Manawatu. Northland was the only region to report a smaller crop than last season, due to prolonged periods of heavy rain and tropical storms. National average production per hive was 36 kilograms compared with 30.7 kilograms per hive in 2006/07.

Bee colonies came through the winter in good condition, and a benign September allowed beekeepers to complete their spring management, especially early queen bee production. However, October was very stormy, with cold winds and rainfall in many parts of the country, which greatly affected the main queen bee mating period. As a result, many beekeepers struggled to get hives up to strength for early pollination, although swarming was not as problematic as last season.

The La Niña weather pattern delivered warm settled conditions and below-average rainfall in many areas during November and early December. Golden Bay, Nelson, Marlborough, Taranaki and inland Canterbury had record sunshine hours for November. As a result of the good weather conditions, early flowering manuka, kanuka, rewarewa, kamahi and tawari yielded good crops of honey, as did thyme in Central Otago. Some beekeepers on the West Coast reported yields of over 100 kilograms per hive of kamahi and other bush sources. The exception was Northland, which experienced heavy rains and floods that hampered production.

Below-average rainfall and above-average sunshine hours were experienced over much of the country from late December to January, and this affected pasture nectar flows, especially clover. Despite this, a record national honey crop was still recorded.

HONEY PRICES UP SLIGHTLY

Prices paid to the beekeeper for most lines of honey rose slightly in 2007/08 as a result of higher export returns (in New Zealand dollar terms). Increases in world honey prices, evident towards the end of 2007, are only slowly filtering through to prices paid to New Zealand beekeepers, because exporters are being cautious and exchange rates remain high. The reduction in key exchange rates in the first half of 2008 resulted in a price increase of approximately 6 percent to New Zealand suppliers. New Zealand honey tends to be priced at the top end of the market, so the ability to increase prices in international markets is limited. Bulk domestic honey returns are heavily influenced by international prices, because of the need to export a proportion of the New Zealand crop to maintain domestic market stability.

World prices for bulk honey rose during the latter half of 2007 as droughts, heavy rains and cold weather affected crops in Argentina, Australia, Turkey and Uruguay. The US export honey crop was also lower, following substantial hive losses caused in part by Colony Collapse Disorder. The 2007 US crop of 68 000 tonnes was the lowest in a seven-year sequence of declining crops dating back to 2000, when a 100 000 tonne crop was recorded. In addition, many exporting countries are now using more honey within their own borders, which is further reducing world

supply. This bodes well for New Zealand's lighter grade honeys, especially clover, which was difficult to sell in 2007. One industry prediction is that clover honey could return up to \$4.00 per kilogram to beekeepers in the second half of 2008 and into 2009, compared with the 2007/08 price of \$2.80 to \$3.75.

Certified organic honeys are currently attracting a 35 percent premium over equivalent non-organic honeys and more sales could be made if the product was available.

Prices for points of activity¹ for active manuka honey remained largely unchanged from last year. Bulk prices for non-active manuka honey varied considerably depending on the nature of the contract. One buyer paid \$8.00 per kilogram for early sales but met the cost of freight, storage, extraction and drums. Most bulk sales were in the range \$11.20 to \$11.50, with the beekeeper paying for extraction, drums and usually freight.

Prices for a range of honey types as well as other apicultural products are summarised in Table 12.3.

► OTHER REVENUE SOURCES

POLLINATION

Kiwifruit pollination fees remained stable compared with last year. This is due to low returns in the kiwifruit industry and beekeepers protecting pollination contracts from competitors. Prices ranged from \$100.00 to \$170.00 per hive, depending on the level of service provided (including placement of the hives in the orchard and sugar syrup feeding), ease of access and payment arrangements.

Demand for pollination bees by growers of processed stonefruit crops in Hawkes Bay continues to increase due to the decline in the number of wild bee colonies from varroa.

In Canterbury, pollination of small seed crops is growing in importance, especially in very high-value crops such as carrot and canola seed, which are bulked up in New Zealand for northern hemisphere use. Canola can be used for biofuel production, so beekeepers are expecting increased demand for canola seed. Prices for pollinating small seed crops have increased to \$150.00 per hive. Growers are increasingly demanding hives that have been externally audited to ensure only good-quality hives are supplied.

¹ The "activity" of manuka honey is based on the non-hydrogen peroxide activity and is expressed as points of activity using phenol as a reference point. Points-of-activity payments usually begin when the honey scores over 10 points. For example, honeys with a base price of \$11.20 and an activity of 15 points would be worth \$17.20 per kilogram at \$1.20 per point and up to \$19.95 per kilogram at \$1.75 per point.

»» TABLE 12.3: RETURNS FOR APICULTURE PRODUCTS, 2006–2008

YEAR ENDED 30 JUNE	2006	2007	2008
BULK HONEY¹ – COLOUR GRADE (\$/kg FOB²)			
Light (clover type)	2.85–4.50	2.20–3.90	2.80–3.75
Light amber	3.50–4.00	3.50–3.90	2.80–3.00
Dark, including honeydew	3.00–4.00	2.90–3.90	2.80–3.70
Manuka ³	5.00–7.25	10.90–11.25	11.20–11.50
BEESWAX (\$/kg FOB): RESIDUE FREE			
Light	6.00–6.60	6.00–6.50	6.50–7.00
Dark	4.50–5.00	4.50–5.20	5.00–5.20
POLLEN (\$/kg FOB)			
Not dried or cleaned	14.00–16.00	14.00–16.00	16.00–18.00
Cleaned and dried	20.00–37.00	20.00–35.00	20.00–30.00
POLLINATION (\$/HIVE)			
Pipfruit, stonefruit and berryfruit	60.00–72.50	60.00–90.00	60.00–100.00
Kiwifruit ⁴			
– Hawkes Bay	110.00–115.00	110.00–150.00	110.00–170.00
– Auckland	90.00–185.00	100.00–185.00	110.00–150.00
– Bay of Plenty	102.00–170.00	102.00–175.00	110.00–160.00
– Nelson	95.00–110.00	100.00–120.00	100.00–120.00
Canola and small seeds (carrots)	...	120.00	150.00

Notes

1 Beekeepers supply drums or containers.

2 Free on board.

3 Non-active manuka honey.

4 Prices at the lower end of the range are for hives delivered to depot sites. At the upper end, prices include delivery into the orchard and sugar for three one-litre feeds to stimulate the bees to collect pollen.

Symbol

... data not available.

Source

AsureQuality Limited.

LIVE BEES

Shipments of live bee packages² to Canada increased by 49 percent on last year's total, to over 22 500 packages. This resulted from increased demand from Canadian beekeepers and the introduction of a non-stop air service from Auckland to Vancouver. Prices paid to beekeepers for bulk bees increased by \$2.00 per kilogram to \$22.00. Some queen bees were sent to the UK and 648 packages of bees and 122 queen bees went to Germany, which is a new market.

² Bulk bees are exported in "packages", that is, cardboard and wire mesh units that contain 1.0 to 1.5 kilograms of bees, a queen bee in a cage and a food source. The packages are either box shaped and about the size of a shoe box or cardboard tubes about 1.5 metres tall and 100 millimetres in diameter. The other main live bee export is queen bees. These are shipped in small plastic cages with a piece of sugar candy for food and six to eight worker bees to care for the queen.



POLLEN, PROPOLIS³ AND BEESWAX⁴

Pollen production continues to decline, with only a small number of producers remaining in the North Island. Pollen cannot be trapped in hives while they are in orchards for pollination, on a heavy nectar flow or being treated for varroa. This leaves little opportunity to collect pollen commercially. Increasing fuel costs are limiting the financial viability of pollen collection, as traps need to be serviced every three days during the collection period.

The prices paid for pollen, propolis and beeswax remained static, although demand outstripped supply for organic beeswax. Buyers are now very discerning about wax and propolis that has come from hives treated for varroa control with miticides containing fluvalinate. Differential payment schedules are quoted for product from treated and non-treated hives, and residue-free product is much easier to sell. For example, one buyer is offering \$225.00 per kilogram for hive scrapings that yield 25 percent pure propolis, provided it is free of specified residues, compared with \$150.00 per kilogram for equivalent scrapings that contain specified residues.

➤ EXPENDITURE INCREASING

Diesel and vehicle maintenance are major costs for all commercial beekeepers because hives must be visited regularly and are often at widely scattered and geographically remote locations. In addition, pollination contracts require hives to be delivered to orchards and farms and then moved away again after pollination to capture nectar flows in more productive areas. Beekeepers are reviewing vehicle usage, management practices, apiary locations and revenue streams to reduce travel costs.

Hives with varroa must be managed more intensively than hives without varroa. Beekeepers have found that the ratio of hives per full-time equivalent worker (which includes field, honey factory and management staff) has reduced from about 800:1 to 450:1 or less. As well as increased labour units, the cost of these units also increased during the year.

Interest rates also increased during 2007/08, which affected mortgages and operating finance.

The Varroa Agency that managed the Varroa Pest Management Strategy ceased to levy South Island beekeepers following the establishment of varroa in Nelson. This saved beekeepers \$1.38 per hive. However, the National Beekeepers' Association increased its apiary levy from \$8.50 to \$9.50 to fund the American Foulbrood Pest Management Strategy.

³ Propolis is a gum or resin that is exuded by trees and shrubs and collected by bees. It has antibiotic properties and is made into many therapeutic products after extraction and refining.

⁴ Most of the wax produced in New Zealand is used to produce sheets of beeswax foundation, which goes into new frames or is used to coat plastic frames. Quantities of beeswax are also made into candles and cosmetics.

With the detection of varroa mite outside of the Nelson Controlled Area in April 2008, beekeepers in the South Island are bracing themselves for the expected spread of the mite and the impact of significant increases in operating costs in the future.

Contract extraction fees rose significantly as some operators reassessed and factored in their full operating costs. These include the cumulative effect of compliance documentation requirements and production losses in their own businesses while they extract other beekeepers' honey, and increased costs for electricity, rates and wages. Charges of \$13.00 to \$15.00 per box to process manuka honey were reported, and \$8.00 to \$13.00 for other honey types. This has encouraged a number of beekeepers to look at setting up their own extracting or storage premises, which will mean costs for buildings, equipment and risk management programme development.

»» INDUSTRY ISSUES AND DEVELOPMENTS

» BEEKEEPER MORALE AND BUSINESS VIABILITY PLANS

Despite a late-season lift in prices paid for honey, the sector continues to be concerned about its financial sustainability. The sector has particular concerns about the increasing cost of diesel, the prospect of competition from cheaper imported honey and the potential for other bee pests and diseases (such as European Foulbrood, the Small Hive Beetle and Colony Collapse Disorder) to become established in New Zealand.

Beekeepers are trying to diversify their income options as much as possible with off-farm income, paid pollination services, propolis collection and supplying bees for export or to the North Island⁵. This is particularly evident in the South Island, with the expected spread of varroa, which will greatly increase operating costs and make organic beekeeping very difficult. A few beekeepers are expanding their businesses to achieve economies of scale in varroa treatments, sugar, packaging and honey processing, although this also increases staff and fuel costs.

Commercial beekeeper numbers currently appear to be relatively stable. There were 2594 beekeepers registered as at 31 May 2008, a net loss of 27 (mostly hobbyist beekeepers) from the May 2007 total. Hive numbers increased by 9 percent (an increase of 29 492 hives), mostly as a result of some beekeepers increasing holdings for manuka honey production. Part of the increase may also arise from the removal of the hive levy for varroa management in the South Island.

Details of beekeeper and hive numbers by region are provided in Table 12.4.

» BEEKEEPER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

The main price increases are in vehicle running, wages, servicing capital and compliance costs. Beekeepers are reviewing vehicle use, especially large trucks. They are also evaluating the cost of servicing distant apiaries, especially if these are not on manuka production. An increasing number of beekeepers are looking at exporting honey themselves, rather than supplying a honey packer or an exporter.

⁵ South Island hives are being sold to the North Island to make up for winter losses or to increase hive numbers for manuka production.

»» TABLE 12.4: NEW ZEALAND BEEKEEPER, APIARY AND HIVE STATISTICS,
AS AT 31 MAY 2008

LOCATION	BEEKEEPERS	APIARIES	HIVES
Blenheim	261	1 913	27 638
Canterbury	499	3 866	54 655
Hamilton	181	2 254	43 722
Otago/Southland	334	3 397	51 248
Palmerston North	573	3 432	57 395
Tauranga	259	3 077	65 588
Whangarei	487	2 549	43 877
New Zealand	2 594	20 488	344 123

Source
AsureQuality Limited.

Beekeepers are concerned about the increasing costs of compliance for exporting bee products and live bees, providing food safety assurances and managing risk management programmes. However, operators of risk management programmes are now more accepting that there are risks associated with producing and processing bee products, and that risk management programmes are a suitable vehicle to manage the risks.

» PESTS AND DISEASES

In April 2008 varroa was found south and east of the Nelson Controlled Area. In September 2008 varroa was found in Canterbury. MAF Biosecurity New Zealand is currently reviewing the response to determine how to best respond to the new situation.

Beekeepers are reporting continuing resurgence in German (or European) wasp numbers, first noticed in 2006, and attribute the loss of many hives to wasps. These large wasp numbers have not been seen for many years and beekeepers are now factoring in the costs of locating and eradicating nests, as well as having to relocate apiaries that are suffering serious predation.

A very serious bee condition called Colony Collapse Disorder (CCD) continues to affect colonies in the US and Europe. In North America, beekeepers reported losses of 30 to 90 percent of hives, with an average of 30 percent in 2006 and 36 percent in 2007. British beekeepers are reporting winter losses of up to 50 percent, although they are not blaming CCD. The disorder has not been identified in New Zealand so far but symptoms similar to CCD can be found when varroa numbers reach very high levels.



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HORTICULTURE AND ARABLE MONITORING TEAM

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Process and fresh vegetables	Irene Parminter	(07) 957 8312
Maize	Murray Doak	(03) 943 1705
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Apiculture	Irene Parminter	(07) 957 8312

APPENDIX 2

MODEL INFORMATION

»» HOW THE MODELS WERE CREATED

The model orchards, vineyards and arable farm depicted in this report are representative of their farm type within each region. Each model is created from information drawn from up to 20 properties and a wide cross section of agribusiness representatives.

The aim of each model is to typify an average orchard, vineyard or arable farm for the region. Budget figures are averaged from the contributing properties and adjusted to represent real orchards and vineyards and an arable farm. Income figures include off-orchard/vineyard/farm income, new borrowing and other cash income. Expenditure figures include costs of management, production, debt, leasing, drawings, and other land development and capital purchases.

Monitoring is continually being improved to meet the needs of the users of the reports. From time to time, the models are revisited and changes may be made. Bear this in mind when making comparisons between years.

»» CALCULATIONS USED IN THE MODELS

Part of the objective of the MAF models is to show the profitability of the models on a cash-in/cash-out basis for the season, before the introduction of outside funds such as off-orchard/vineyard/farm revenue, introduced funds or new borrowing. Prior to 2007, the bottom line was depicted as the disposable surplus/deficit. This included such expenditure as capital expenditure, principal repayments and development expenditure, but excluded outside (off-orchard/vineyard/farm) funds. This has been replaced by the orchard, vineyard or farm surplus for reinvestment.

» ORCHARD, VINEYARD OR FARM SURPLUS FOR REINVESTMENT

The orchard, vineyard or farm surplus for reinvestment represents the cash available from the business after meeting living costs, which then may be invested in the business or used for principal repayments. It is calculated as follows:

- › discretionary cash;
- › less off-orchard/vineyard/farm income and drawings.

» ECONOMIC ORCHARD, VINEYARD OR FARM SURPLUS

The economic orchard, vineyard or farm surplus (EOS, EVS or EFS) depicted in the model budgets is calculated as follows:

- › net cash income;
- › less working expenses (excluding interest, rent and lease costs);
- › less depreciation;
- › less wages of management (WOM).

► WAGES OF MANAGEMENT

WOM is calculated as follows:

- › \$31 000 allowance for labour input;
- › plus 1 percent of total capital as managerial reward.

An upper limit for WOM of \$75 000 has been set.

►► MODEL DETAILS

► KIWIFRUIT

The model kiwifruit orchard is in the Bay of Plenty, the growing region that produces around 80 percent of the New Zealand kiwifruit crop. The model budget represents an established owner-operator orchard. The model is created from data collected from 17 orchards located from Opotiki to north of Katikati, and from information from a wide cross section of agribusiness representatives.

Financial data relates to a year end of 31 March. Kiwifruit income spans two financial years, with the residual payment for each crop occurring in the next financial year (for example, final payments on the crop harvested in May 2007 occur in the 2008/09 forecast year).

► PIPFRUIT

The two pipfruit models represent New Zealand's main pipfruit growing areas: Hawkes Bay is the largest pipfruit-producing district, exporting over half the national crop; Nelson is the second largest apple-growing region. The orchards are a mixture of old and new apple varieties, typically run by owner-operators. Although there is a trend towards corporate ownership, this has not been captured in the models, which are based on an owner-operator business structure.

The pipfruit model budgets are prepared using a 31 December year end to allow financial comparisons from year to year.

HAWKES BAY PIPFRUIT MODEL

The Hawkes Bay model includes leased land that accounts for about one-third (7 hectares) of the orchard size (22 hectares). Royal Gala is the predominant apple variety in the model, accounting for 32 percent of the planted area. The model is based on data from 20 orchards located on the Heretaunga Plains.

NELSON PIPFRUIT MODEL

The Nelson model orchard is 27 hectares. Braeburn is the predominant apple variety in the model, accounting for 39 percent of the planted area. The model is based on data from 18 orchards.

► VITICULTURE

The two model vineyards represent the predominant grape-growing regions of Marlborough and Hawkes Bay. These

two regions currently account for up to 80 percent of the grape harvest in New Zealand. The models are primarily owner-operated businesses where the main source of income is derived from grape growing. Smaller lifestyle properties and larger corporate businesses are excluded from the survey.

Financial data in the viticulture models relates to a year end of 30 June.

HAWKES BAY VITICULTURE MODEL

The Hawkes Bay model is based on data from 15 vineyards that are spread from the coast to the Gimblett Gravels. Merlot is the dominant grape variety, followed by Chardonnay and Sauvignon Blanc. The vineyard includes young plantings of Syrah that are coming into production. New plantings of Sauvignon Blanc and Pinot Gris are scheduled for winter 2008.

MARLBOROUGH VITICULTURE MODEL

The Marlborough model draws on data from 18 vineyards that are mostly located in the Wairau Valley, although three are situated in the Awatere Valley. Sauvignon Blanc is the dominant grape variety in the model vineyard, followed by Pinot Noir, Chardonnay and Pinot Gris.

➤ ARABLE

Canterbury is the largest arable cropping area in New Zealand. The Canterbury arable cropping model represents about 500 properties larger than 100 hectares located throughout Canterbury, of which about half are in the mid-Canterbury region.

The monitored farms generate more than 50 percent of their income from growing crops. They are generally either more than 75 percent irrigated or located in normally reliable rainfall areas. Most properties grow a combination of crops, which are grouped in the budget into cereals, small seeds (including grass, clover and vegetable seeds), process vegetables, silage and other crops. Most have some type of stock enterprise as an integral part of the system, for example, grazing, trading and/or breeding stock.

The model is derived from a sample of 20 farms.

APPENDIX 3

REVIEW OF CLIMATIC CONDITIONS DURING THE 2007/08 GROWING SEASON

»» KIWIFRUIT

» BAY OF PLENTY

Overall, growing conditions were favourable for the production and harvest of the 2008 kiwifruit crop. Weather at flowering was favourable for bee activity, with sufficient fine, low wind-run days to ensure good pollination. Spring conditions were warm, with few damaging frosts. The eight-month growing season from September 2007 to April 2008 was the warmest in 10 years. There were few damaging wind events.

Growers began the season with a modest number of flowers, but a high proportion of the flowers grew into export-sized fruit. Little fruit thinning was required to adjust the crop load, so growers concentrated on removing blemished fruit. Dry weather through the summer helped to contain vine vigour, and orchards withstood the lower rainfall well. Orchards on lighter or shallower soils tend to have irrigation and, in many other areas of the Bay of Plenty, the deep soils enabled vines to develop extensive root systems that enhanced their resilience to dry conditions.

Autumn rain broke the drought. Fruit matured early and weather conditions for early harvest were good. A spell of wet weather during late April and early May disrupted the harvest temporarily but fine weather and adequate worker numbers meant the harvest concluded a week earlier than usual, despite the high production.

» OTHER REGIONS

In Northland, both green and gold volumes were down on the 2007/08 season due to variable pollination, but fruit size and dry matter increased. In Auckland, production was up slightly on 2007/08, and dry matter improved. Fruit size for green kiwifruit was smaller than the national average due to the dry summer conditions. Drought also led to reduced fruit size and yield in the Waikato, but dry matter levels were higher than the national average.

In Hawkes Bay, production levels fell slightly compared with 2007/08, but increased fruit size was achieved. Gisborne experienced a wet growing and harvest season. Gold kiwifruit size and volume were up on the 2007/08 season, and green volumes were slightly down but with increased fruit size. Dry matter levels were well above the national average.

In Nelson and the rest of the South Island, the volume and size of gold and green kiwifruit increased, with dry matter levels similar to 2007/08.

»» PIPFRUIT

» HAWKES BAY

Two severe frosts in Hawkes Bay on 4 October 2007 and 20 October 2007 widely affected unprotected pipfruit crops and reduced gross yields in the region, particularly in Braeburn. Jazz™ and other varieties treated with dormancy breakers were also affected, and fruit size was reduced in Royal Gala as fruit set on later flowers. Weather conditions over blossom and fruit set were dry and cool, with one of the coolest springs experienced for many years. Growing degree day accumulation in October and November was just 112 and 122, respectively.

Cool, dry conditions over fruit cell division adversely affected fruit size but improved fruit finish at harvest in russet-prone varieties, such as Pacific Queen™. While the dry spring favoured disease control, these conditions, followed by a warm dry summer, led to some serious insect pest problems, particularly the woolly apple aphid.

The harvest period was characterised by warm, dry weather, at least until April, which allowed most of the crop to be picked under ideal weather conditions.

Little fruit was lost from hail damage in the 2007/08 season, with the only significant hailstorms of the season occurring just after blossom in a fairly confined area.

»» TABLE A3.1: HAWKES BAY WEATHER DATA

MONTH	RAINFALL (mm)			GROWING DEGREE DAYS ¹ (GDD)		
	2006/07	2007/08	AVERAGE ²	2006/07	2007/08	AVERAGE ³
September	22	50	52	67	54	47
October	52	19	51	114	112	104
November	30	5	48	194	122	143
December	64	102	49	133	222	217
January	23	10	44	254	249	250
February	48	18	53	199	229	226
March	22	34	61	222	213	198
April	24	107	66	90	130	119
Total	285	345	424	1273	1331	1304

Notes

1 GDD – growing degree days. GDDs are calculated by taking the average of the daily high and low temperatures each day compared with a baseline (usually 10 degrees centigrade). They help to predict the date that a flower will bloom or a crop reach maturity.

2 Average rainfall is the average of data since 1983.

3 Average GDD is the average of data since 1983.

Source

NIWA (Whakatu Logger Site).

» NELSON

The season started out with average temperatures, but a cold spell in late spring slowed down canopy development. A frost in October 2007 did not cause as much damage as first feared, and crop loading and fruit finish was better than expected.

A wet October made it difficult for growers to apply early-season sprays at the right time, and sodden ground meant a few growers used helicopter spraying, an uncommon practice in Nelson. These conditions also delayed the planting of new trees until November. December onwards signalled the start of above-average temperatures but with average rainfall levels right up to April. These warmer conditions allowed for excellent fruit growth and, despite crop loads in

Royal Gala being higher than in previous years, fruit size was also large, achieving an average count of 108 or better.

The harvest period was relatively dry and very few days were lost through rain up until April. From then on, the Braeburn harvest was longer than anticipated due to poor colour development and some delays with rain.

No hail events of consequence occurred this season, the first time in recent years that apple crops in Nelson have not been affected.

»» TABLE A3.2: NELSON WEATHER DATA

MONTH	RAINFALL (mm)			GROWING DEGREE DAYS (GDD)		
	2006/07	2007/08	AVERAGE ¹	2006/07	2007/08	AVERAGE ²
September	23	103	118	67	58	42
October	144	193	121	90	85	86
November	100	4	100	135	150	125
December	63	95	91	159	228	194
January	95	92	81	239	279	235
February	16	68	84	212	215	219
March	44	106	88	201	194	182
April	97	208	122	93	120	94
Total	582	869	805	1196	1329	1177

Notes

1 Average rainfall is the average of data since 1988/89.

2 Average GDD is the average of data since 1993/94.

Source

HortPlus (HortResearch, Riwaka Logger Site).

»» VITICULTURE

» MARLBOROUGH

The majority of the 2007/08 season was characterised by excellent growing conditions. Moderate rainfall and above-average growing degree days prior to Christmas provided ideal growing conditions and ensured most crops experienced very good fruit set. A small number of isolated vineyards experienced substantial damage from a frost on 20 October 2007.

January, February and most of March were very favourable for quality grape production. Above-average growing degree days, especially for January, and low, but regular, rainfall from January to the end of March provided ideal growth and ripening conditions. Rainfall in late March and April led to increased *Botrytis* fungal infection and contributed to a challenging harvest for the approximately 40 percent of blocks that had not been harvested.

Reports have generally been very good regarding the quality of fruit that wineries received, especially for fruit received before the late-season rainfall.

»» TABLE A3.3: MARLBOROUGH WEATHER DATA

MONTH	RAINFALL (mm)			GROWING DEGREE DAYS (GDD)		
	2006/07	2007/08	AVERAGE ¹	2006/07	2007/08	AVERAGE ²
September	7	35	51	86	63	43
October	83	91	55	103	108	113
November	76	9	48	171	145	140
December	28	63	47	144	212	205
January	58	19	50	241	273	234
February	10	26	45	213	223	217
March	12	51	46	243	205	196
April	49	113	53	89	114	108
Total	316	372	344	1204	1280	1213

Notes

1 Average rainfall is the average of data since 1930.

2 Average GDD is the average of data since 1947.

Source

HortPlus (Marlborough Research Centre Logger Site).

» HAWKES BAY

The beginning of the growing season was marred by three significant frosts in October 2007. Areas not normally prone to frosts were affected and some growers experienced total crop loss.

November was cooler than average and October and November were very dry months, registering 19 millimetres and 5 millimetres of rain, respectively. Cooler conditions in November had a slight negative effect on flowering and fruit set, further reducing crops.

The summer months had lower-than-average rainfall with average temperatures, which led to some good yields and quality, especially for those crops not affected by frost. Significant rain at harvest increased disease pressure and forced some varieties to be harvested before they were fully ripe.

Reports from the wineries have been positive about the quality of the season's red grapes. White wine produced from 2008 grapes is expected to be of reasonable quality, although not outstanding.

See Table A3.1 for Hawkes Bay weather data.

ARABLE

CANTERBURY

Overall, the growing season was very good for most crops, with few crop failures. Weather conditions during autumn and winter 2007 were generally ideal for cereal and small seed crop establishment. The cool, dry conditions helped reduce disease and prevented crops grown on heavy soils from becoming water logged.

Spring 2007 was cooler than usual, particularly October. While some windy periods delayed spraying, there was little impact on crops, and cultivation conditions were ideal.

TABLE A3.4: CANTERBURY WEATHER DATA, 2007/08 COMPARED WITH MEAN

	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	ANNUAL
LINCOLN H32645													
Rainfall (mm)	62	75	35	29	79	40	59	19	108	23	38	57	624
Mean (1972–2007)	60	64	67	43	53	51	55	47	42	51	51	53	635
% of mean	103	118	53	67	149	79	107	41	260	44	75	109	98
Temp (C)	5.6	6.3	7.3	9.7	11.4	13.1	15.9	17.7	16.8	15.2	12.4	7.8	11.6
Mean (1972–2007)	6.8	6.2	7.6	9.7	11.8	13.1	15.3	16.7	16.7	14.8	12.0	9.5	11.7
dep from mean	-1.2	0.1	-0.3	0.0	-0.4	0.0	0.6	1.0	0.1	0.4	0.4	-1.7	-0.1
Deficit days	12.0	0.0	0.0	0.0	2.0	20.0	19.0	27.0	9.0	22.0	8.0	0.0	119
Mean (1972–2007)	1.0	0.6	0.6	1.9	6.9	14.1	18.7	20.2	18.6	14.9	9.7	2.7	109.9
dep from mean	11.0	-0.6	-0.6	-1.9	-4.9	5.9	0.3	6.8	-9.6	7.1	-1.7	-2.7	9.1
WINCHMORE H31883													
Rainfall (mm)	45	67	41	46	65	30	51	29	119	26	37	46	601
Mean (1947–2007)	60	64	73	55	64	58	63	59	53	64	61	59	732
% of mean	76	105	57	83	102	51	81	49	226	41	60	77	82
Temp (C)	5.5	5.6	7.1	9.4	10.9	12.6	15.3	17.7	16.6	15.2	11.8	7.0	11.2
Mean (1969–2007)	6.1	5.6	6.9	9.0	11.0	12.7	14.8	16.3	16.2	14.3	11.6	8.7	11.1
dep from mean	-0.6	0.0	0.2	0.4	-0.1	-0.1	0.5	1.4	0.4	0.9	0.2	-1.7	0.1
Deficit days	1.0	0.0	0.0	0.0	0.0	22.0	19.0	25.0	4.0	21.0	10.0	0.0	102
Mean (1949–2007)	0.4	0.0	0.0	0.3	3.1	10.6	15.8	17.2	14.9	13.0	5.8	1.2	82.3
dep from mean	0.6	0.0	0.0	-0.3	-3.1	11.4	3.2	7.8	-10.9	8.0	4.2	-1.2	19.7
TIMARU H41325													
Rainfall (mm)	28	60	27	37	39	44	47	27	53	16	15	10	403
Mean (1990–2007)	38	42	44	38	54	48	51	51	46	53	47	43	554
% of mean	75	143	62	97	72	90	92	53	117	30	32	23	73
Temp (C)	4.8	5.1	6.2	8.7	10.4	11.7	14.2	17.0	15.8	14.9	10.8	6.4	10.5
Mean (1990–2007)	5.5	4.8	6.3	8.5	10.4	11.8	14.1	15.6	15.5	13.6	10.7	8.2	10.4
dep from mean	-0.7	0.3	-0.1	0.2	0.0	-0.1	0.1	1.4	0.3	1.3	0.1	-1.8	0.1
Deficit days	12.0	0.0	0.0	0.0	5.0	19.0	14.0	25.0	12.0	23.0	18.0	2.0	130
Mean (1949–2007)	1.0	1.5	1.2	2.4	6.6	12.9	17.6	17.7	15.9	12.7	8.1	1.9	99.5
dep from mean	11.0	-1.5	-1.2	-2.4	-1.6	6.1	-3.6	7.3	-3.9	10.3	9.9	0.1	30.5

Source
NIWA.

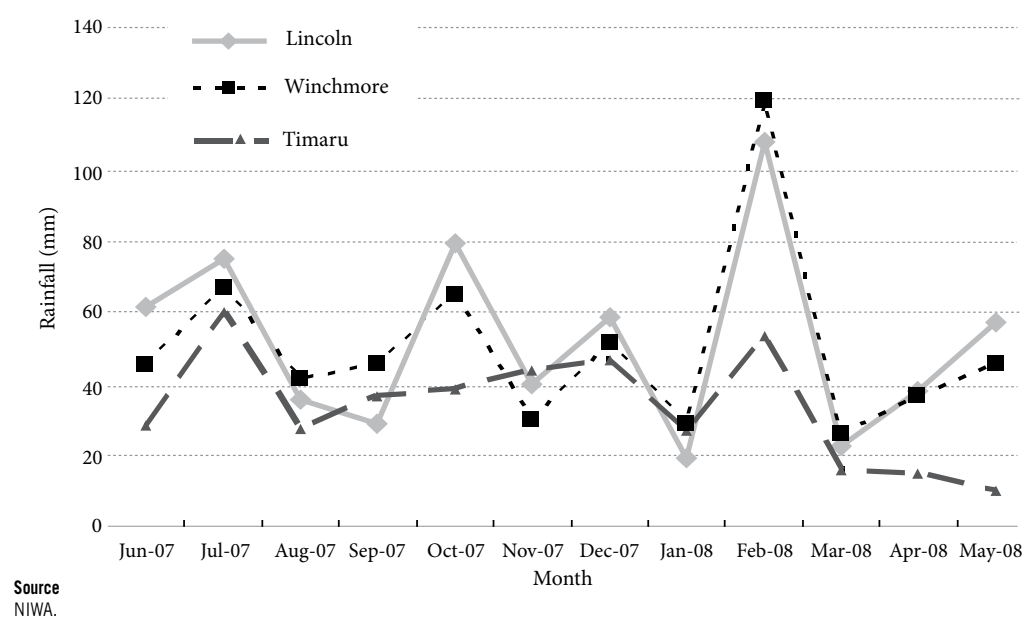
The very dry November to January period caused some yield reduction in dryland crops, although not as much as farmers had expected. Growing conditions were excellent for farms with irrigation, although the grain fill period was shortened a little by the extreme temperatures. Heat stress caused a slight reduction in yield for some cereal and ryegrass crops. Some crops experienced moisture stress when the irrigation system could not meet plants' demand for water.

Unusually, there were no significant late frosts or hailstorms in late 2007.

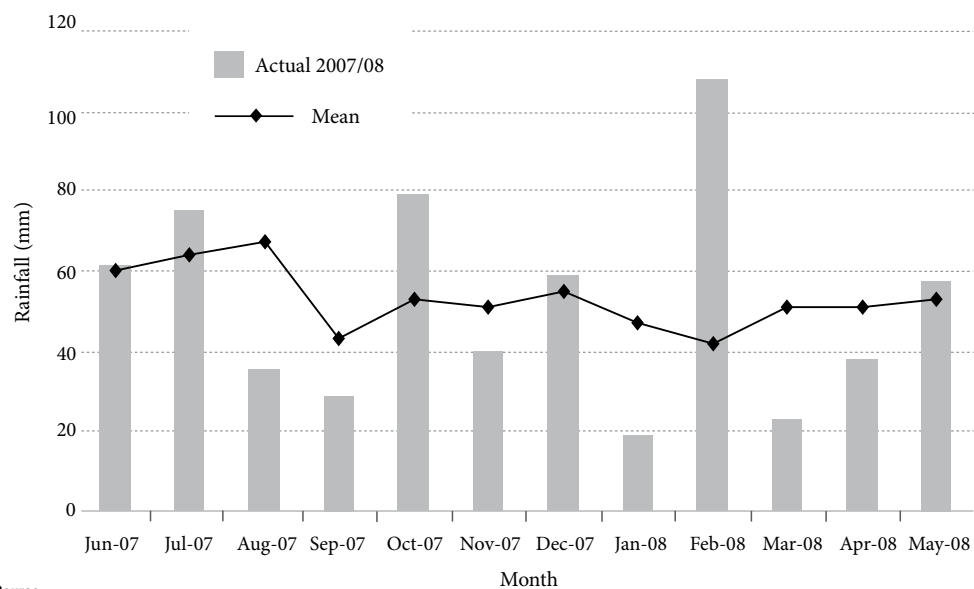
The dry ground conditions in summer/autumn meant that the harvest of grass seeds went very well compared with the year before. Even the substantial drought-breaking rain that came in February did not adversely affect the harvest. South Canterbury did not receive a large proportion of the February rain, which often creates difficulty during harvest. Overall, almost everyone experienced a successful and relatively straightforward harvest.

Crop establishment in autumn 2008 was also generally good, although dryland areas on light soils were on the dry side. High populations of grass grub have caused some problems in wheat and small seed crops.

»» FIGURE A3.1: RAINFALL FOR LINCOLN, WINCHMORE AND TIMARU, 2007/08

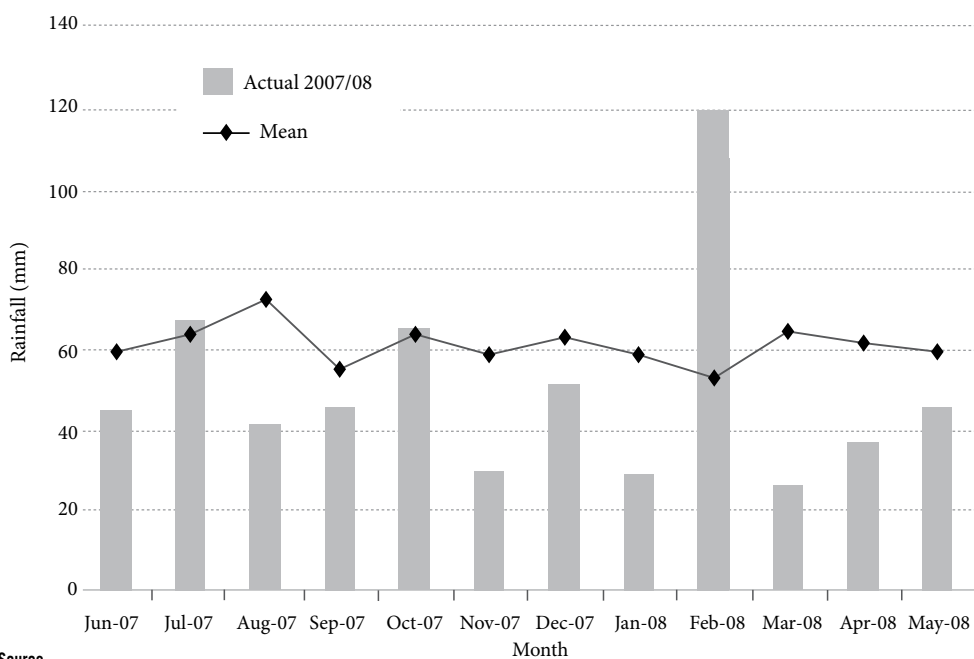


»» FIGURE A3.2: LINCOLN RAINFALL, 2007/08, ACTUAL VS MEAN



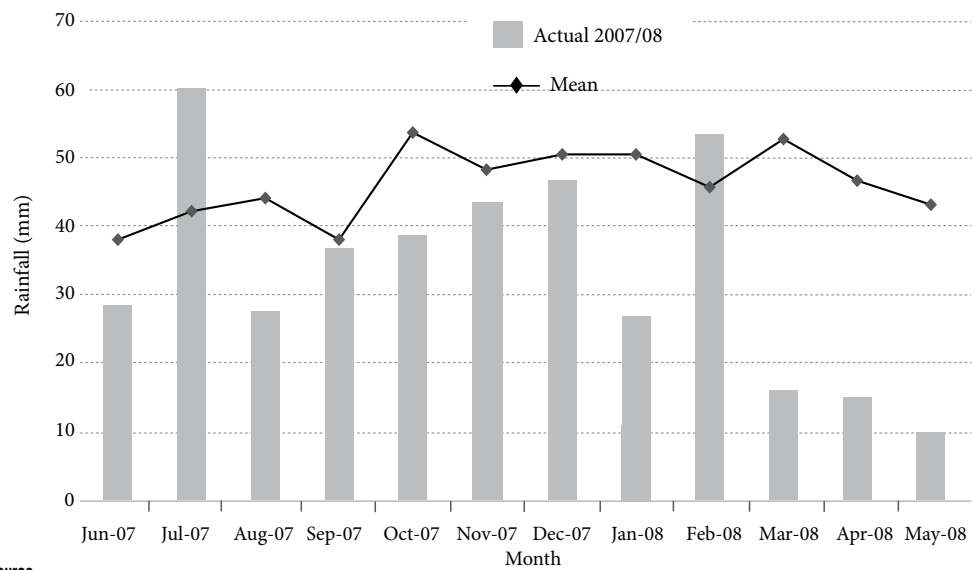
Source
NIWA.

»» FIGURE A3.3: WINCHMORE RAINFALL, 2007/08, ACTUAL VS MEAN



Source
NIWA.

»» FIGURE A3.4: TIMARU RAINFALL 2007/08, ACTUAL VS MEAN

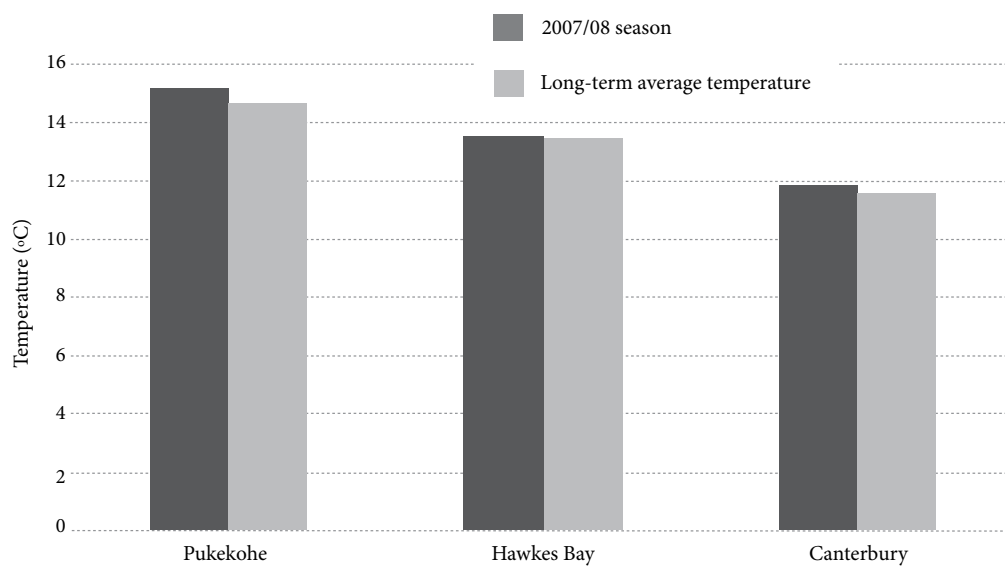


Source
NIWA.

»» PROCESS AND FRESH VEGETABLES

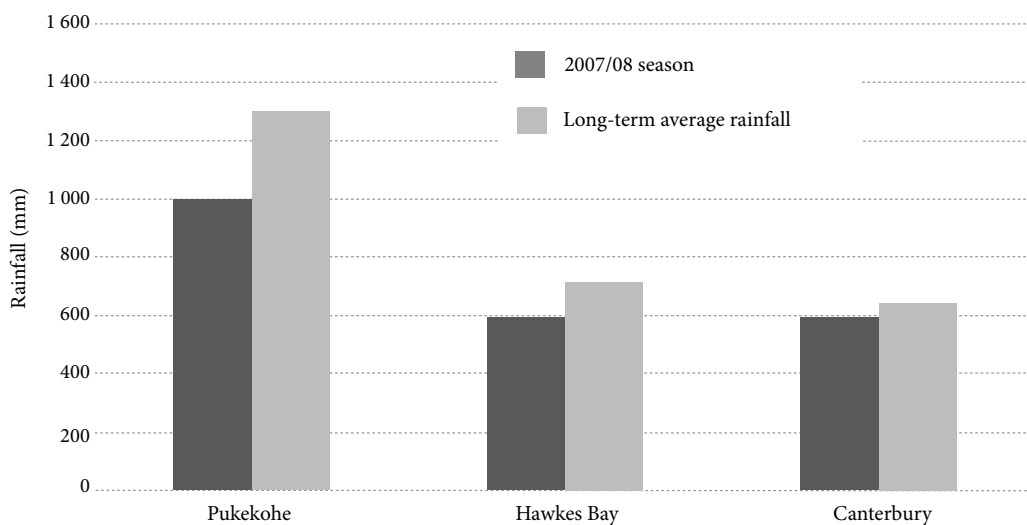
» PUKEKOHE, HAWKES BAY AND CANTERBURY

»» FIGURE A3.5: MEAN MONTHLY TEMPERATURES FOR THE PROCESS AND FRESH VEGETABLE GROWING SEASON



Source
NIWA.

»» FIGURE A3.6: RAINFALL FOR THE PROCESS AND FRESH VEGETABLE GROWING SEASON



Source
NIWA.

APPENDIX 4

SUPPORTING DATA

»» TABLE A4.1: NATIONAL PIPFRUIT EXPORT PRODUCTION BY VARIETY AND REGION

	2004 (TCE ¹)	2005 (TCE)	2006 (TCE)	2007 (TCE)	2008 FORECAST ⁴ (TCE)
PIPFruit VARIETY					
Braeburn	8 363 936	7 154 584	6 073 271	5 975 462	4 864 727
Cox Orange Pippin ²	...	603 111	538 594	409 779	498 256
Cripps Pink ²	...	353 739	283 237	425 589	418 726
Fuji	1 579 630	1 086 772	982 852	1 424 310	1 377 039
Granny Smith ²	...	414 512	420 239	378 366	363 674
Jazz ^{TM2}	...	119 000	244 421	415 051	791 717
Pacific Beauty ^{TM2}	...	179 640	92 232	169 112	93 434
Pacific Queen ^{TM2}	...	312 348	179 751	281 952	292 858
Pacific Rose ^{TM2}	...	511 595	347 592	431 926	271 989
Royal Gala	7 128 585	6 534 556	5 323 013	5 735 216	5 600 914
Other Apples	2 818 155	240 716	226 897	454 537	533 458
Pears	361 356	388 577	260 810	310 503	378 888
Total	20 251 662	17 899 150	14 972 909	16 411 804	15 485 580
REGION					
Hawkes Bay	11 535 313	10 044 781	8 566 443	10 514 889	8 916 587
Gisborne ³	...	452 433	160 514	...	...
Waikato ³	...	463 973	247 432	...	...
Other North Island ³	...	164 163	124 374	...	...
Nelson	6 512 739	6 245 091	5 452 813	4 807 056	5 496 384
Otago	600 000	528 710	419 898	380 889	442 057
Other South Island ³	...	0	1 433	...	...
Region undefined	1 603 610	0	0	709 000	630 552
Total	20 251 662	17 899 151	14 972 907	16 411 804	15 485 580

Notes

1 Tray carton equivalent.

2 Export production for 2004 included under other apples.

3 Export production for 2004, 2007 and 2008 included under region undefined.

4 Export production in 2008 is likely to be less than the 15.5 million cartons forecasted due mainly to reduced expectations around the Braeburn crop.

Symbol

... Figures not available.

Source

Pipfruit New Zealand (2008). *Pipfruit industry statistical annual 2007*; Pipfruit New Zealand, Hastings and Agfirst (HB) Consultants Ltd (2008) *National pipfruit crop estimate 2008*. Report prepared for Pipfruit New Zealand, January 2008.

»» TABLE A4.2: NATIONAL PLANTED PIPFRUIT AREA BY VARIETY AND REGION

	2004 (HA)	2005 (HA)	2006 (HA)	2007 (HA)	2008 (HA)
PIPFruit VARIETY					
Braeburn	3 901	3 159	2 464	2 484	2 246
Cox Orange Pippin ¹	...	401	354	314	295
Cripps Pink ¹	...	349	288	248	285
Fuji	1 133	1 018	875	836	829
Granny Smith ¹	...	374	322	294	286
Jazz ^{TM1}	...	289	440	576	768
Pacific Beauty ^{TM1}	...	351	251	177	162
Pacific Queen ^{TM1}	...	351	306	223	212
Pacific Rose TM	1 133	819	642	529	454
Royal Gala	4 153	3 393	2 872	2 893	2 669
Other apples ¹	2 264	257	183	192	333
Pears	910	936	722	735	412
Total	13 495	11 700	9 719	9 501	8 950
REGION					
Hawkes Bay	7 154	6 280	5 800	5 800	5 479
Gisborne ²	...	260	220	160	...
Waikato ²	...	360	280	220	...
Other North Island ²	...	400	320	300	...
Nelson	3 822	3 230	2 500	2 500	2 556
Otago	789	670	400	350	380
Other South Island ²	...	350	200	170	...
Region undefined	1 730	150	0	0	535
Total	13 495	11 700	9 720	9 500	8 950

Note

1 Planted area in 2004 included under other apples.

2 Planted area in 2004 and 2008 included under region undefined.

Symbol

... Figures not available.

Sources

Pipfruit New Zealand (2008). *Pipfruit industry statistical annual 2007*; Pipfruit New Zealand, Hastings and Agfirst (HB) Consultants Ltd (2008); *National pipfruit crop estimate 2008*. Report prepared for Pipfruit New Zealand, January 2008.

»» TABLE A4.3: NEW ZEALAND VINTAGES BY VARIETY AND REGION, 2003–2008

	2003 (t)	2004 (t)	2005 (t)	2006 (t)	2007 (t)	2008 FORECAST (t)
GRAPE VARIETY						
Sauvignon Blanc	28 266	67 773	63 297	96 686	102 426	169 613
Chardonnay	15 543	35 597	29 741	26 944	38 792	33 346
Pinot Noir ¹	9 402	20 145	14 578	22 062	20 699	32 878
Pinot Gris	836	1 888	1 655	3 675	6 053	12 417
Merlot	4 957	9 330	9 194	11 206	11 714	10 166
Riesling	3 376	5 647	4 792	6 745	6 017	8 547
Semillon	2 192	3 511	2 388	2 664	2 929	2 561
Cabernet Sauvignon	3 201	4 045	3 018	2 659	2 462	2 270
Gewurztraminer	529	1 325	1 164	1 532	2 052	2 101
Muscat varieties	1 242	1 828	2 098	1 532	2 017	1 697
Syrah	330	691	758	1 057	1 514	1 452
Malbec	458	1 106	763	1 325	1 086	1 036
Muller Thurgau	1 685	3 888	2 144	1 573	1 437	847
Pinotage	588	917	708	631	890	719
Cabernet Franc	602	858	782	673	819	688
Reichensteiner	644	1 140	675	762	512	681
Viognier	–	–	155	176	543	573
Other red vinifera	221	400	459	262	227	291
Other white vinifera	330	668	360	344	415	247
Chenin Blanc	391	1 325	629	337	212	151
All hybrids	38	17	47	40	8	71
Total	74 822	162 100	139 406	182 885	202 823	282 350
Industry total²	76 400	166 000	142 000	185 000	205 000	...
REGION						
Marlborough	40 537	92 581	81 034	113 436	120 888	194 639
Hawkes Bay	10 832	30 429	28 098	33 287	41 963	34 284
Gisborne	14 350	25 346	22 493	18 049	26 034	23 911
Otago	1 825	1 439	1 441	4 612	3 434	9 495
Nelson	3 149	4 563	2 454	5 623	5 190	7 002
Wellington/Wairarapa	1 311	2 820	1 649	3 008	1 949	4 105
Auckland	715	1 497	948	1 345	1 241	1 604
Canterbury	1 422	2 825	895	3 051	1 699	689
Northland	182	144	183	208	203	204
Waikato/Bay of Plenty	497	457	210	261	212	192
Other	–	–	–	6	–	...
Total	74 820	162 100	139 406	182 885	202 823	282 319
Industry total	76 400	166 000	142 000	185 000	205 000	...

Notes

1 Pinot Noir vintage breakdown for 2008: table grapes 28 093 and sparkling grapes 4 785.

2 "Industry total" represents the tonnes crushed by the total wine industry. The difference between "Total" and "Industry total" is data from wine companies that did not respond to the New Zealand Winegrowers Annual Vintage Survey.

Symbol

– Amount too small to be expressed.

... Figures not available.

Sources

New Zealand Winegrowers Statistical Annual 2007. New Zealand Winegrowers; Auckland.

The 2008 vintage data was updated through communication with New Zealand Winegrowers.

»» TABLE A4.4: OUTLOOK FOR GLOBAL CEREAL PRODUCTION AND NEW ZEALAND WHEAT PRICE

OUTLOOK	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
World wheat area (million ha)	216	207	215	223	218	217	218
Production (million t)	618	589	603	622	619	630	645
Stocks (million t)	135	116	110	115	111	112	114
Consumption (million t)	622	607	611	616	623	630	643
Price (\$US/t)	176	212	339	288	295	301	307
\$NZ/\$US	0.69	0.66	0.76	0.76	0.72	0.66	0.63
Equivalent \$NZ price (\$NZ/t)	254	322	446	377	413	453	487
New Zealand contract price forecast (milling wheat \$NZ/t)	285	315	380	530	500	520	540
World maize price forecast (\$US/t)	106	157	193	198	202	206	209
Australian malting barley price forecast (\$A/t)	202	321	370	322	328	335	338

Sources

Australian Bureau of Agricultural and Resource Economics, NZ Treasury, MAF.

»» TABLE A4.5: EXPORTS, IMPORTS AND PRODUCTION OF NEW ZEALAND GRAIN AND SEEDS

YEAR ENDED 31 MARCH	2003/04	2004/05	2005/06	2006/07	2007/08 FORECAST
EXPORTS					
Ryegrass (\$ million)	22	33	25	24	33
Ryegrass (t)	10 100	15 400	11 800	11 300	17 215
Clovers (\$ million)	7	11	11	20	23
Clovers (t)	1 300	2 200	1 900	3 600	4 035
Vegetable seeds (\$ million)	18	25	26	36	38
Vegetable seeds (t)	3 000	3 500	4 000	5 600	6 043
Other seeds (\$ million)	13	14	11	13	17
Peas (\$ million)	25	24	21	21	25
Peas (t)	13 500	12 200	11 700	11 800	14 600
Cereals and milling products (\$ million)	6.9	6.4	8.4	6.7	9.5
Breads, cakes, baking mixes, etc (\$ million)	70	74	90	82	106
IMPORTS					
Wheat (t)	336 000	278 600	376 900	372 700	385 500
Wheat value (\$ million)	112	81	108	98	123
Maize (t)	31 500	8 700	1 000	700	800
Maize value (\$ million)	11.5	5.0	3.2	3.1	4.1
Other grains (excl rice) (\$ million)	7.5	4.7	16.0	9.1	11.6
Other animal feeds (palm kernel extract + Copra) (\$ million)	5.7	6.5	16.9	26.6	54.3
NEW ZEALAND PRODUCTION					
Wheat area (ha)	40 900	39 000	40 000	40 500	45 000
Production (t)	255 900	319 000	297 000	344 000	378 000
Milling price (\$/t)	315	290	285	315	380
Barley area (ha)	48 500	50 000	50 000	51 500	66 200
Production (t)	226 000	302 000	274 000	336 000	444 000
Average price (\$/t)	247	244	256	263	363
Maize area (ha)	17 000	15 200	18 200	17 000	18 000
Production (t)	192 000	159 000	209 000	186 000	189 000
Average price (\$/t)	354	257	260	280	345
Peas area (ha)	9 500	9 700	8 000	6 300	6 000
Peas production (t)	28 500	29 000	25 000	22 000	21 500
OTHER CROPS					
Ryegrass area (ha certified)	19 680	21 500	18 090	14 140	16 325
Ryegrass production (t seed dressed/tested)	15 400	11 800	11 300	17 200	...
Clover area (ha certified)	7 700	8 340	10 160	8 950	6 470
Clover production (t seed dressed/tested)	2 490	3 510	5 290	...	...
Other certified seeds area (excluding cereals) (ha)	5 697	5 476	5 038	4 691	5 624
Other certified seed production (excluding cereals) (t)	2 936	2 761	2 555	...	...

Symbol

... Figures not available.

Sources

Statistics New Zealand, Foundation for Arable Research, MAF, AsureQuality Ltd.