2009 HORTICULTURE AND ARABLE MONITORING

KIWIFRUIT

THIS REPORT CONTAINS THE KEY RESULTS FROM THE MINISTRY OF AGRICULTURE AND FORESTRY'S 2009 KIWIFRUIT MONITORING PROGRAMME.

KEY POINTS

- In 2008/09, production per hectare in the model rose by 6 and 9 percent for green and gold kiwifruit, respectively, as a result of good seasonal conditions. Production of green kiwifruit in 2009/10 is expected to remain static whilst a slight drop in yield is predicted for the gold variety.
- Orchard gate returns per tray improved for all kiwifruit varieties in 2008/09 driven by favourable fruit size, exchange rate gains and good in-market prices. Growers expect little change in returns for green kiwifruit in 2009/10 but are optimistic of an 18 percent increase in returns ($1 per tray) for gold kiwifruit. Favourable exchange rates and reduced fuel and shipping costs are expected to offset any downward pressure on prices in overseas markets due to the global economic recession.
- Orchard working expenses increased by 20 percent in 2008/09, driven by an increase in the cost of labour, fertiliser and fuel inputs and a larger crop. Additional crop management requirements for the 2009 crop also pushed up expenditure on labour. Increases in yield meant that costs per export tray increased by much less, by 12 percent to $3.08 per tray. Growers are hoping to keep costs under control for the 2009/10 season.
- The model achieved a modest profit before tax in 2008/09, with the profit level expected to double in 2009/10. Growers are optimistic that orchard profitability will continue to improve in the coming years, and are excited about the potential value of new kiwifruit varieties being developed by Plant and Food Research in partnership with ZESPRI.

TABLE 1: KEY PARAMETERS, FINANCIAL RESULTS AND BUDGET FOR THE KIWIFRUIT ORCHARD MODEL

YEAR ENDED 31 MARCH	2005/06	2006/07	2007/08[1]	2008/09	2009/10 BUDGET
Total effective area (ha)[2]	5.0	5.0	5.0	5.0	5.0
ZESPRI™ GREEN					
Production (export trays/ha)[3]	7 750	7 270	8 060	8 520	8 520
Total production (export trays)	34 875	32 715	32 240	34 080	34 080
Total revenue (OGR[4]$/tray)	3.46	4.09	3.11	3.68	3.68
Revenue before 31 March[5] ($/tray)	3.07	3.62	2.86	3.40	3.40
Revenue after 31 March ($/tray)	0.39	0.47	0.25	0.28	0.28
ZESPRI™GOLD					
Production (export trays/ha)	9 300	9 480	10 360	11 260	11 000
Total production (export trays)	4 650	4 740	10 360	11 260	11 000
Total revenue (OGR $/tray)	5.46	5.18	4.45	5.41	6.41
Revenue before 31 March ($/tray)	4.92	4.73	4.15	5.00	6.00
Revenue after 31 March ($/tray)	0.54	0.45	0.30	0.41	0.41
Net cash income ($)	152 800	162 900	157 900	189 400	201 600
Orchard working expenses ($)	123 800	123 700	116 600	139 500	141 100
Orchard profit before tax ($)	–200	9 400	7 300	15 200	32 200
Orchard surplus for reinvestment[6] ($)	–40 400	–17 700	–26 600	–23 800	–12 900

Notes

Figures may not add to the totals due to rounding.

1 Model parameters were revised in the 2007/08 year, 0.5 hectares of Hayward were substituted for 0.5 hectares of Hort16A. Due to the revision, data for the 2007/08 year will not match the *Horticulture and Arable Monitoring Report 2008*.

2 The model orchard is a mature orchard planted with 4 hectares of Hayward (ZESPRI™ GREEN) and 1 hectare of Hort16A (ZESPRI™ GOLD). The orchard is not organic.

3 The kiwifruit crop is harvested from April to June, so the 2008 crop is recorded in the 2008/09 year. A tray contains approximately 3.6 kilograms of kiwifruit.

4 Orchard gate return.

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

6 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.

Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere

TABLE 2: KIWIFRUIT ORCHARD MODEL BUDGET

	2008/09			2009/10 BUDGET			CHANGE
	WHOLE ORCHARD ($)	PER HECTARE ($)	PER CLASS ONE TRAY ($)	WHOLE ORCHARD ($)	PER HECTARE ($)	PER CLASS ONE TRAY ($)	BETWEEN 2008/09 AND 2009/10 (%)
REVENUE							
Green – OGR[1] progress	115 900	28 968	3.40	115 900	28 968	3.40	0
– previous crop final	8 000	2 015	0.25	9 500	2 385	0.28	18
Gold – OGR progress	56 300	56 300	5.00	66 000	66 000	6.00	17
– previous crop final	3 100	3 110	0.30	4 600	4 620	0.41	49
Other fruit crops	3 500	700	0.08	2 300	452	0.05	–35
Other orchard income	2 500	504	0.06	3 400	672	0.07	33
Net cash income	**189 400**	**37 872**	**4.18**	**201 600**	**40 330**	**4.47**	**6**
Orchard working expenses	**139 500**	**27 891**	**3.08**	**141 100**	**28 230**	**3.13**	**1**
Cash operating surplus	**49 900**	**9 981**	**1.10**	**60 500**	**12 100**	**1.34**	**21**
Interest	23 900	4 784	0.53	18 800	3 752	0.42	–22
Rent and/or leases	0	0	0.00	0	0	0.00	..
Depreciation	10 800	2 160	0.24	9 500	1 904	0.21	–12
Orchard profit before tax	**15 200**	**3 037**	**0.33**	**32 200**	**6 444**	**0.71**	**112**
Tax	800	160	0.02	3 000	618	0.07	286
Orchard profit after tax	**14 400**	**2 877**	**0.32**	**29 100**	**5 826**	**0.65**	**103**
Add back depreciation	10 800	2 160	0.24	9 500	1 904	0.21	–12
Net non-fruit cash income	9 800	1 960	0.22	9 700	1 950	0.22	0
Off-orchard cash income	19 500	3 900	0.43	19 100	3 820	0.42	–2
Discretionary cash	**54 500**	**10 897**	**1.20**	**67 500**	**13 500**	**1.50**	**24**
APPLIED TO:							
Net capital purchases	4 400	874	0.10	1 600	320	0.04	–63
Development	600	120	0.01	0	0	0.00	..
Drawings	58 800	11 752	1.30	61 300	12 260	1.36	4
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	**–9 200**	**–1 849**	**–0.20**	**4 600**	**920**	**0.10**	**150**
Orchard surplus for reinvestment[2]	**–23 800**	**–4 755**	**–0.52**	**–12 900**	**–2 580**	**-0.29**	**46**
ASSETS AND LIABILITIES							
Land and building (opening)	1 475 000	295 000	32.53	1 375 000	240 000	30.50	–7
Plant and machinery (opening)	62 100	12 420	1.37	57 000	11 400	1.27	–8
Orchard related investments (opening)	65 000	13 000	1.43	62 400	12 480	1.38	–4
Total orchard assets (opening)	**1 602 100**	**320 420**	**35.34**	**1 494 400**	**298 880**	**33.15**	**–7**
Total liabilities (opening)	**221 900**	**44 380**	**4.89**	**235 500**	**47 100**	**5.22**	**6**
Total equity	**1 380 200**	**276 040**	**30.44**	**1 258 900**	**251 780**	**27.93**	**–9**

Notes
Figures may not add to the totals due to rounding.
1 Orchard gate return.
2 Orchard surplus for reinvestment is calculated as follows: discretionary cash less off-orchard income and drawings.

Symbol
.. Not applicable.

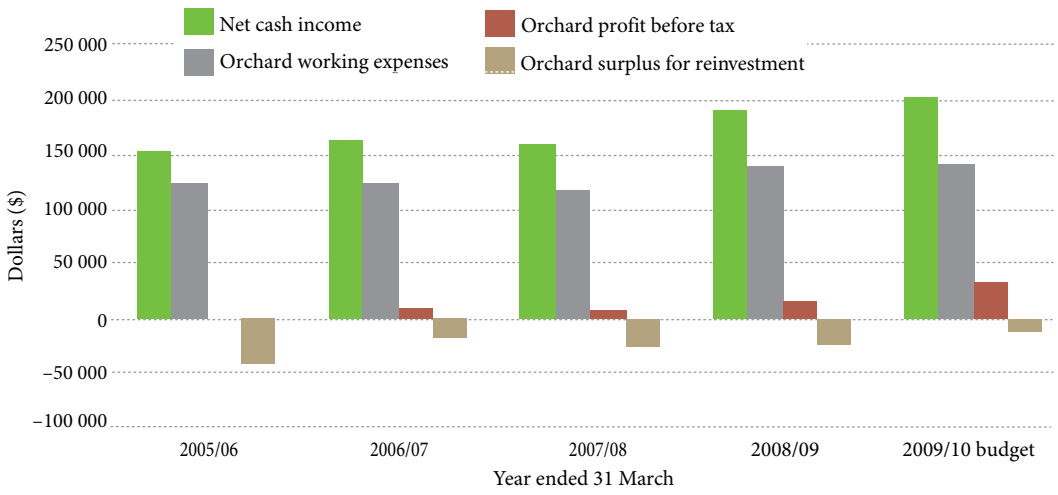
TABLE 3: KIWIFRUIT ORCHARD MODEL EXPENDITURE

	2008/09			2009/10 BUDGET			CHANGE
	WHOLE ORCHARD ($)	PER HECTARE ($)	PER CLASS ONE TRAY ($)	WHOLE ORCHARD ($)	PER HECTARE ($)	PER CLASS ONE TRAY ($)	BETWEEN 2008/09 AND 2009/10 (%)
ORCHARD WORKING EXPENSES							
Wages	55 100	11 030	1.22	55 200	11 050	1.23	0
Picking wages	17 100	3 430	0.38	18 000	3 600	0.40	5
ACC – employees	0	0	0.00	0	0	0.00	..
Total labour expenses	**72 300**	**14 460**	**1.59**	**73 200**	**14 650**	**1.62**	**1**
Weed and pest control	7 000	1 400	0.15	8 000	1 600	0.18	14
Pollination	10 500	2 100	0.23	10 500	2 100	0.23	0
Fertiliser and lime	9 600	1 920	0.21	9 600	1 920	0.21	0
Electricity	1 100	230	0.03	1 200	240	0.03	4
Vehicle (including fuel)	7 700	1 546	0.17	8 000	1 600	0.18	3
Repairs and maintenance	9 600	1 920	0.21	9 500	1 900	0.21	–1
General	3 200	640	0.07	2 600	520	0.06	–19
Frost protection	0	0	0.00	0	0	0.00	..
Contract machine work	1 400	275	0.03	1 100	230	0.03	–16
Total other working expenses	**50 200**	**10 031**	**1.11**	**50 500**	**10 110**	**1.12**	**1**
Rates	4 000	810	0.09	4 200	850	0.09	5
Insurance	2 300	460	0.05	2 300	460	0.05	0
ACC – owners	1 500	308	0.03	1 600	326	0.04	6
Communication	2 400	474	0.05	2 400	474	0.05	0
Accountancy	3 200	640	0.07	3 200	640	0.07	0
Legal and consultancy	1 200	240	0.03	1 200	246	0.03	3
Levies and subsciptions	600	128	0.01	600	128	0.01	0
Other administration	1 700	340	0.04	1 700	346	0.04	2
Total overhead expenses	**17 000**	**3 400**	**0.37**	**17 300**	**3 470**	**0.38**	**2**
Total orchard working expenses	**139 500**	**27 891**	**3.08**	**141 100**	**28 230**	**3.13**	**1**
Wages of management	47 000	9 400	1.04	45 900	9 180	1.02	–2
Depreciation	10 800	2 160	0.24	9 500	1 904	0.21	–12
Total orchard operating expenses	**197 300**	**39 451**	**4.35**	**196 500**	**39 314**	**4.36**	**0**
CALCULATED RATIOS							
Economic orchard surplus (EOS)[1]	–7 900	–1 583	–0.17	5 000	1 007	0.11	
Orchard working expenses/NCI[2]	74%			70%			
EOS/total orchard assets	–0.5%			0.3%			
EOS less interest and lease/equity	–2.3%			–1.1%			
Interest+rent+lease/NCI	12.6%			9.3%			
EOS/NCI	–4.2%			2.5%			

Notes
Figures may not add to the totals due to rounding.
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 miximum of $75 000.
2 Net cash income.

Symbol
.. Not applicable.

FIGURE 1: KIWIFRUIT ORCHARD MODEL PROFITABILITY TRENDS



FINANCIAL PERFORMANCE OF THE KIWIFRUIT ORCHARD MODEL IN 2008/09

The kiwifruit model made a profit before tax of $15 200 in 2008/09 as a result of improved orchard gate returns and a larger crop.

IMPROVED YIELDS AND EXPORT RETURNS LIFT REVENUE

Higher orchard gate returns and yields provided a 20 percent increase in orchard net cash income to $189 400 in 2008/09.

EXPORT RETURNS

Grower prices per tray for green, green organic and gold kiwifruit were all higher in 2008/09 compared with 2007/08. This increase was driven by favourable fruit size, exchange rate gains and good in-market prices. Average industry orchard gate returns per tray for the 2008 crop were:

- Green: $3.68 per tray (18 percent higher than the previous season)
- Organic green: $6.27 per tray (18 percent higher)
- Gold: $5.41 per tray (21 percent higher)

Individual grower's revenue per tray varies considerably around the average due to incentive payments for fruit size, fruit taste, fruit keeping quality, market access status and early harvest.

YIELD AND QUALITY

Yield per hectare in the model increased 6 percent to 8520 trays per hectare for green kiwifruit and 9 percent to 11 260 trays per hectare for gold kiwifruit in 2008/09 over the previous season. Favourable seasonal conditions pushed national production to new heights with New Zealand exporting 106 million trays in the year ended 31 March 2009. Continual yearly increases in yields have enhanced growers' confidence in their ability to influence the productivity of their vines through good orchard management practices and innovation.

Fruit loss costs are deducted before calculating orchard gate returns and were similar in 2008/09 to the previous year for green kiwifruit and lower for gold kiwifruit. This outcome was assisted by industry efforts to review and improve fruit handling practices prior to the 2008 harvest.

OTHER INCOME

Income from other fruit crops (often a small area of avocados) and sundry income such as renting out tractors during harvest, totalled $6000, contributing 3 percent of the model's revenue. Dividends on ZESPRI shares provided $9800 in income which is recorded under "net non-fruit cash income" in the budget.

LABOUR DRIVES EXPENDITURE INCREASE

The model's total working expenses increased by 20 percent to $139 500 in 2008/09, driven by a larger crop in 2008, an increase in the cost of some inputs and additional crop management requirements for the 2009 crop. On a per tray basis, working expenses reached $3.08 per tray in 2008/09, an increase of 12 percent over the previous year.

Total labour expenditure increased 18 percent to $72 300 in 2008/09. This was driven by a combination of increases in minimum wage rates and the use of more labour inputs. The higher yield resulted in picking expenses rising by 6 percent to $17 100 over the previous year. High flower numbers in spring 2008 on the main green kiwifruit variety led to concerns that fruit size of the 2009 crop may be small, so growers undertook more fruit thinning, which is all done by hand.

Fertiliser expenditure increased 54 percent to $9600, due to substantial increases in world fertiliser prices. Growers maintained fertiliser use despite sharp price rises, considering it an important input and a relatively modest proportion (7 percent) of orchard working expenses. Growers increased their use of supplementary pollination based on trial results from 2007/08, which indicated it was likely to be cost effective on most orchards.

NET RESULT IMPROVES

Orchard profit before tax for the kiwifruit model improved significantly in 2008/09, up 108 percent to $15 200. Expenditure on development and capital items fell by 38 percent to $5000 reflecting the effects of a period of low orchard profitability. Grower spending on these activities was usually targeted at replacing aging vine support structures, vehicles and equipment, or enhancing production by such methods as erecting artificial shelter in strategic locations.

Debt servicing costs in the model increased by 14 percent in 2008/09 to $23 900. This was driven by increases in overdraft, and in interest rates as growers switched from fixed to floating rates in anticipation of interest rate cuts later in the financial year.

Drawings increased 4 percent to $58 800 as growers sought to maintain their standard of living.

Growers on the monitored orchards consider their off-orchard income a key contribution to meeting living costs. However, during the 2008/09 year off-orchard income fell 25 percent, reflecting lower deposit interest rates and generally lower investment returns due to the global recession.

A cash deficit of $9200, and negative surplus for reinvestment remain in the kiwifruit model for the year ended 31 March 2009, although this is somewhat reduced from the levels of 2007/08.

The land and building value of the model has declined by $100 000 (6 percent), reflecting trends in kiwifruit orchard values in the Bay of Plenty region.

BUDGET FINANCIAL PERFORMANCE OF THE KIWIFRUIT ORCHARD MODEL IN 2009/10

Orchard profit before tax is expected to increase by 112 percent over the previous year to $32 200, driven by growers' anticipation of a $1.00 per tray increase in the orchard gate return for gold kiwifruit. Orchard working expenses are expected to increase only slightly. Stable kiwifruit yields are expected in the 2009/10 year, the first time for a few years that yields have not increased.

GOLD KIWIFRUIT PRICES RAISE EXPECTED REVENUE

Net cash income for the model is budgeted to increase by 6 percent in 2009/10 to $201 600, driven by higher prices expected for gold kiwifruit. Growers expect that favourable exchange rates and reduced fuel and shipping costs will offset any downward pressure on prices in overseas markets due to the global recession.

ZESPRI has released indicative gross returns for the 2009/10 season which signal a similar return is likely for green kiwifruit, significantly higher returns for gold kiwifruit and slightly lower returns for green organic fruit compared with 2008/09.

YIELD AND QUALITY

Green kiwifruit yields in the model are expected to stabilise at 8520 trays per hectare, with gold kiwifruit yields expected to fall marginally to 11 000 trays per hectare. Growing season conditions were very good, until marred by a hail storm in the Bay of Plenty about half way through harvest in May 2009, which affected some crops severely.

In spring 2008, initial flower counts indicated potential for the 2009 green kiwifruit crop to be large with many small sized fruit. Growers were urged to thin excess flowers and small fruit to enhance fruit size at harvest. This was relatively successful with fruit size distributions close to the preferred profiles for kiwifruit marketing. Early fruit maturity allowed a record early start to fruit shipping.

In March 2009 the green kiwifruit crop was deemed so large that the industry risked an extended selling season with consequential increases in fruit spoilage and re-packing costs. To reduce this negative impact, a small proportion of fruit (2 percent) was intended to be crop-managed, in effect not harvested. However, the quantity of fruit lost due to hail damage exceeded the volume intended for this crop management programme, and the programme was terminated part way through.

EXPENDITURE EXPECTED TO INCREASE SLIGHTLY

Orchard working expenses for the model are expected to increase by 1 percent in 2009/10 to $141 100, mainly due to a rise in labour expenses.

NET RESULT CONTINUES TO IMPROVE

The anticipated financial outcome for the model in 2009/10 is an improvement on recent years with a cash operating surplus of $60 500 and a net trading profit before tax of $32 200. Reduced debt servicing costs as a result of lower interest rates are also helping to lift profit levels. However, with an expectation that off-orchard income will reduce slightly, growers are anticipating an increase of 4 percent in drawings to accommodate increases in living expenses. This leaves little surplus funds for principal repayments. Expenditure on development and capital items is likely to be restricted to those deemed really necessary.

PROFITABILITY TRENDS

The model demonstrates a gradual improvement in profit levels since 2005/06, reflecting increases in yields and/or market prices (Figure 1). An increase in the proportion of the model planted in Hort16A, from 10 to 20 percent in 2007/08, is also helping to lift profitability. This change in variety mix aligns with industry statistics with Hort16A now accounting for approximately 20 percent of the kiwifruit planted area in the Bay of Plenty.

INDUSTRY ISSUES AND DEVELOPMENTS

GROWER MORALE AND BUSINESS VIABILITY PLANS

The stable number of growers and continual increase in the area planted in kiwifruit, despite an extended period of low profitability, reflects growers' confidence in the New Zealand kiwifruit industry. Growers believe the high value of the New Zealand dollar in recent years impaired their returns but favourable currency forecasts for the 2009/10 year have boosted growers' morale.

In light of low and fluctuating returns in recent years, growers have focused more on productivity improvements as a means of enhancing orchard profitability. Productivity improvements are being achieved through attention to detail for practices such as pruning, thinning, pollination, trunk girdling and the strategic use of tools like shelter cloths above and below vines. Favourable growing conditions in the 2007/08 and 2008/09 growing seasons helped complement growers' management techniques and have achieved a significant lift in productivity.

NEW VARIETIES

Growers are excited about the potential of new kiwifruit varieties being developed in New Zealand by Plant and Food Research in partnership with ZESPRI. Growers believe that involvement in successful new varieties that expand the kiwifruit share of the fresh-fruit market will enhance orchard revenue. Growers also see new varieties aiding green kiwifruit returns, as conversion of some existing green kiwifruit blocks to new varieties would reduce the supply of green kiwifruit.

GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Growers prioritise spending on inputs that directly relate to production and do not have much room to reduce production costs.

Availability and quality of seasonal labour for harvest has improved due to the Recognised Seasonal Employer scheme. The economic downturn is providing more local workers than previous years.

ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT

DISTRICT PLAN CHANGES

The Western Bay of Plenty District Plan is being reviewed and one change proposed is to restrict subdivision of horticultural land in specified areas to a minimum size of 10 hectares. The intention is to maintain the productive horticultural land base in the main kiwifruit production areas and direct residential activities to urban or lifestyle-block areas. The kiwifruit growers' representative organisation, New Zealand Kiwifruit Growers Incorporated, opposes the change, and considers that smaller lot sizes (3-5ha) can be economically viable. 75 percent of kiwifruit orchards nationwide have 5 or fewer canopy hectares of kiwifruit. Areas used for tracks, dwellings, sheds and gulleys would be additional.

BIOSECURITY THREAT

Rotorua Airport is preparing to host international flights. Having high standard biosecurity screening is viewed as an imperative by the kiwifruit industry due to the airport's proximity to the major kiwifruit growing areas in the coastal Bay of Plenty. The kiwifruit industry is particularly concerned about a possible fruit fly incursion, as the consequences would include severely restricted access to some markets.

UNDERSTANDING THE CARBON FOOTPRINT TO REDUCE EMISSIONS

ZESPRI has completed a greenhouse gas emission study for both green and gold kiwifruit using PAS 2050 methodology. This study was undertaken under the New Zealand Greenhouse Gas Footprinting Strategy, in association with MAF, Landcare Research, Massey University, Plant & Food Research and AgriLINK.

The study found that ZESPRI kiwifruit shipped and consumed in Europe contributes 1.74kg of carbon dioxide equivalents per 1.0kg of kiwifruit across its lifecycle from orchard to consumer. Carbon absorbed by the vines was not included in the completed project; it will, however, be measured in a new project supported by industry and the MAF Sustainable Farming Fund (C09/020). The proportion of total emissions estimated for each stage of the lifecycle of ZESPRI kiwifruit destined for Europe was:

- Orchard operations: 17 percent
- Packhouse and coolstore processes: 11 percent
- Shipping: 41 percent
- Repacking and retailer: 9 percent
- Consumer consumption and disposal: 22 percent

ZESPRI and the wider kiwifruit industry intend to use the project outputs to guide investment in technologies and practices to reduce the greenhouse gas footprint of New Zealand grown kiwifruit.

INFORMATION ABOUT THE MODEL

The kiwifruit orchard model represents kiwifruit orchards 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 has 4 hectares of Hayward (ZESPRI™ GREEN) and 1 hectare of Hort16A (ZESPRI™ GOLD). The model is created using data collected from 17 orchards located from Te Puke to north of Katikati, and information from a wide cross-section of agribusiness representatives.

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. For example, final payments on the crop harvested in May 2008 occur in the 2009/10 budget year.

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

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