BAY OF PLENTY KIWIFRUIT

KEY RESULTS FROM MAF'S 2011 KIWIFRUIT MONITORING PROGRAMME. Please note that several budget parameters have changed between 2009/10 and 2010/11. Caution should be taken when comparing this year's publication to previous years. Refer to the budget table footnotes for more detail.

KEY POINTS

- A bacterial canker disease specific to kiwifruit, *Pseudomonas syringae* pv. *actinidiae* (termed Psa), was confirmed in the Bay of Plenty region in November 2010. This disease has also been confirmed in other kiwifruit growing regions of New Zealand. A new pan-industry organisation jointly funded by government and industry, Kiwifruit Vine Health Incorporated, has been set up to lead the New Zealand response to Psa.
- For most growers, the impact from Psa is an increased cost of prevention to buy time for research and development solutions, and uncertainty around orchard values.
- Difficult climatic conditions during the growing season for the 2010 crop resulted in production per hectare falling in 2010/11; to 8100 green kiwifruit trays per hectare (down 3 percent) and to 9900 gold kiwifruit trays per hectare (down 8 percent). In contrast, climatic conditions during 2011 are expected to drive productivity to record levels; 8600 green trays per hectare (up 6 percent) and 11 300 gold trays per hectare (up 14 percent).
- The average orchard gate return (OGR) per tray for green and gold kiwifruit in 2010/11 improved on the previous season, driven by strong demand and foreign exchange policies that mitigated the impact of the weaker euro.
- Orchard working expenses in the model increased 4 percent in 2010/11 to $148 100, driven by increases in labour expenditure and general inflationary pressures on other inputs and overheads. A 14 percent increase in orchard working expenses is budgeted for 2011/12, due largely to a budgeted Psa management programme.
- Orchard profit before tax in the model increased 48 percent in 2010/11 to $54 800, a level not seen on the model since 2003/04. The profitability of the model in 2011/12 is expected to be tempered by the budgeted expenditure on the Psa management programme.

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

YEAR ENDED 31 MARCH	2007/08	2008/09	2009/10	2010/11	2011/12 BUDGET
Total effective area (ha)[1]	5.0	5.0	5.0	5.0	5.0
ZESPRI® GREEN					
Production (export trays/ha)[2]	8 060	8 520	8 350	8 100	8 600
Total production (export trays)	32 240	34 080	33 400	32 400	34 400
Total revenue (OGR[3]$/tray)	3.11	3.68	3.75	4.24	4.10
Revenue before 31 March[4] ($/tray)	2.86	3.40	3.41	3.91	3.67
Revenue after 31 March ($/tray)	0.25	0.28	0.34	0.33	0.33
Total crop revenue (OGR $/ha)	25 070	31 350	31 310	34 340	35 260
ZESPRI® GOLD					
Production (export trays/ha)	10 360	11 260	10 730	9 900	11 300
Total production (export trays)	10 360	11 260	10 730	9 900	11 300
Total revenue (OGR $/tray)	4.45	5.41	7.41	8.57	7.50
Revenue before 31 March ($/tray)	4.15	5.00	7.06	8.25	7.18
Revenue after 31 March ($/tray)	0.30	0.41	0.35	0.32	0.32
Total crop revenue (OGR $/ha)	46 100	60 920	79 510	81 480	84 750
Net cash income ($)	157 900	189 400	208 580	228 770	226 540
Orchard working expenses ($)	116 600	139 500	141 800	148 050	168 300
Orchard profit before tax ($)	7 300	15 200	37 120	54 840	33 010
Orchard surplus for reinvestment[5] ($)	–37 030	–33 580	–13 080	–1 760	–17 350

Notes

Figures may not add to totals due to rounding.

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

2 The kiwifruit crop is harvested from April to June, so the 2010 crop is recorded in the 2010/11 year. A tray contains approximately 3.6 kilograms of kiwifruit.

3 Orchard gate return. This equals the fruit return paid by ZESPRI® less fruit loss and post-harvest costs plus Class 2 income and rebates.

4 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.

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 orchard profit after tax plus depreciation less drawings. Figures may not match with previous years' published budgets due to changes in the placement of figures in the budget for income from dividends from ZESPRI® shares.

TABLE 2: BAY OF PLENTY KIWIFRUIT ORCHARD MODEL BUDGET

	2009/10	2010/11			2011/12 BUDGET		
	WHOLE ORCHARD ($)	WHOLE ORCHARD ($)	PER HA ($)	PER CLASS 1 TRAY ($)	WHOLE ORCHARD ($)	PER HA ($)	PER CLASS 1 TRAY ($)
REVENUE							
Green – OGR[1] progress	113 894	126 684	31 671	3.91	126 248	31 562	3.67
– previous crop final	9 542	11 356	2 839	0.34	10 692	2 673	0.33
Gold – OGR progress	75 754	81 675	81 675	8.25	81 134	81 134	7.18
– previous crop final	4 617	3 756	3 756	0.35	3 168	3 168	0.32
Other orchard income	4 770	5 300	1 060	0.16	5 300	1 060	0.19
Net cash income	**208 580**	**228 770**	**45 754**	**5.41**	**226 540**	**45 308**	**5.36**
Orchard working expenses	**141 800**	**148 050**	**29 610**	**3.50**	**168 300**	**33 660**	**3.68**
Cash operating surplus	**66 780**	**80 720**	**16 144**	**1.91**	**58 240**	**11 648**	**1.67**
Interest	18 760	15 780	3 156	0.37	16 630	3 326	0.36
Rent and/or leases	0	0	0	0.00	0	0	0.00
Depreciation	10 900	10 100	2 020	0.24	8 600	1 720	0.19
Net non-fruit cash income	0	0	0	0.00	0	0	0.00
Orchard profit before tax	**37 120**	**54 840**	**10 968**	**1.30**	**33 010**	**6 602**	**0.72**
Tax	5 400	10 300	2 060	0.24	4 360	872	0.10
Orchard profit after tax	**31 720**	**44 540**	**8 908**	**1.05**	**28 650**	**5 730**	**0.63**
ALLOCATION OF FUNDS							
Add back depreciation	10 900	10 100	2 020	0.24	8 600	1 720	0.19
Drawings/living expenses	55 700	56 400	11 280	1.33	54 600	10 920	1.19
Orchard surplus for reinvestment[2]	**–13 080**	**–1 760**	**–352**	**–0.04**	**–17 350**	**–3 470**	**–0.38**
REINVESTMENT							
Net capital purchases	10 000	5 000	1 000	0.12	5 000	1 000	0.11
Development	0	0	0	0.00	0	0	0.00
Principal repayments	0	5 000	1 000	0.12	5 000	1 000	0.11
Orchard cash surplus/deficit	**–23 080**	**–11 760**	**–2 352**	**–0.28**	**–27 350**	**–5 470**	**–0.60**
OTHER CASH SOURCES							
Off-orchard cash income	28 700	26 000	5 200	0.61	28 000	5 600	0.61
ZESPRI® dividends (net of tax)	9 350	7 510	1 502	0.18	4 290	858	0.09
New borrowings	0	0	0	0.00	0	0	0.00
Introduced funds	0	0	0	0.00	0	0	0.00
Net cash position	**14 970**	**21 750**	**4 350**	**0.51**	**4 940**	**988**	**0.11**
ASSETS AND LIABILITIES							
Land and building (opening)[3]	1 375 000	1 435 000	287 000	33.92	1 314 000	262 800	28.75
Plant and machinery (opening)	57 000	56 950	11 390	1.35	52 650	10 530	1.15
Orchard related investments (opening)	62 400	67 500	13 500	1.60	42 250	8 450	0.92
Total orchard assets (opening)	**1 494 400**	**1 559 450**	**311 890**	**36.87**	**1 408 900**	**281 780**	**30.83**
Total liabilities (opening)	221 870	235 460	47 092	5.57	230 460	46 092	5.04
Total equity	**1 272 530**	**1 323 990**	**264 798**	**31.30**	**1 178 440**	**235 688**	**25.79**

Notes

Figures may not add to the totals due to rounding.

1 Orchard gate return.

2 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 orchard profit after tax plus depreciation less drawings.

3 Land and building asset value includes the value of owned land, vines and supports, other improvements, orchard buildings and dwellings on the property.

Please note that several budget parameters have changed between 2009/10 and 2010/11. These changes have been made to better reflect the financial position of the orchard. New and adjusted definitions include orchard surplus for reinvestment, orchardccash surplus/deficit and net cash position. Caution should be taken when comparing this year's data to previous years.

TABLE 3: BAY OF PLENTY KIWIFRUIT ORCHARD MODEL EXPENDITURE

	2009/10	2010/11			2011/12 BUDGET		
	WHOLE ORCHARD ($)	WHOLE ORCHARD ($)	PER HA ($)	PER CLASS 1 TRAY ($)	WHOLE ORCHARD ($)	PER HA ($)	PER CLASS 1 TRAY ($)
ORCHARD WORKING EXPENSES							
Pruning wages	45 450	49 000	9800	1.16	50 000	10000	1.09
Thinning wages	11 350	12 250	2450	0.29	13 050	2610	0.29
Picking wages	17 055	16 290	3 258	0.39	17 690	3 538	0.39
Other wages	1 650	3 000	600	0.39	2 500	500	0.39
ACC - employees	0	0	0	0.00	0	0	0.00
Total labour expenses	**75 500**	**80 540**	**16 108**	**1.90**	**83 240**	**16 648**	**1.82**
Weed and pest control	8 900	9 000	1 800	0.21	9 000	1 800	0.20
Psa management	0	0	0	0.00	15 000	3 000	0.33
Pollination	7 600	6 800	1 360	0.16	7 150	1 430	0.16
Fertiliser and lime	9 650	9 650	1 930	0.23	9 750	1 950	0.21
Electricity	1 150	1 300	260	0.03	1 400	280	0.03
Vehicle (including fuel)	6 950	7 300	1 460	0.17	7 450	1 490	0.16
Repairs and maintenance	9 900	9 900	1 980	0.23	9 400	1 880	0.21
General	4 250	2 650	530	0.06	3 850	770	0.08
Frost protection	0	0	0	0.00	0	0	0.00
Freight to packhouse	...	2 960	592	0.07	3 200	640	0.07
Contract machine work	1 600	750	150	0.02	750	150	0.02
Total other working expenses	**50 000**	**50 310**	**10 062**	**1.19**	**66 950**	**13 390**	**1.46**
Rates	4 200	4 500	900	0.11	4 600	920	0.10
Insurance	2 000	2 100	420	0.05	2 200	440	0.05
ACC - owners	1 600	1 750	350	0.04	2 210	442	0.05
Communication	2 200	2 250	450	0.05	2 250	450	0.05
Accountancy	3 000	3 600	720	0.09	3 600	720	0.08
Legal and consultancy	1 200	1 050	210	0.02	1 150	230	0.03
Levies and subscriptions	400	600	120	0.01	700	140	0.02
Other administration	1 700	1 350	270	0.03	1 400	280	0.03
Total overhead expenses	**16 300**	**17 200**	**3 440**	**0.41**	**18 110**	**3 622**	**0.40**
Total orchard working expenses	**141 800**	**148 050**	**29 610**	**3.50**	**168 300**	**33 660**	**3.68**
CALCULATED RATIOS							
Economic orchard surplus (EOS)[1]	35 300	50 040	10 008	1.18	30 550	6 110	0.67
Orchard working expenses/NCI[2]	68.0%	64.7%			74.3%		
EOS/total orchard assets	2.4%	3.2%			2.2%		
EOS less interest and lease/equity	1.3%	2.6%			1.2%		
Interest+rent+lease/NCI	9.0%	6.9%			7.3%		
EOS/NCI	16.9%	21.9%			13.5%		
Wages of management	20 580	20 580	4 116	0.49	19 090	3 818	0.42

Notes
Figures may not add to the totals due to rounding.

1 EOS is calculated as follows: net cash income less orchard working expenses less depreciation less wages of management (WOM). WOM is calculated as follows: $5 000 allowance for labour input plus 1 percent of opening total orchard assets to a maximum of $75 000. The allowance for labour input was decreased from $31 000 to $5 000 for the kiwifruit model from 2010/11 to better match labour and management inputs with an orchard size of 5 hectares. Because of this revision, care needs to be taken in making comparisions with prior years.

2 Net cash income.

Symbol
... Data not recorded in 2009/10.

FINANCIAL PERFORMANCE OF THE BAY OF PLENTY KIWIFRUIT ORCHARD MODEL IN 2010/11

The model's net trading profit before tax increased 48 percent in 2010/11 to $54 800, driven by higher returns for both gold and green kiwifruit. Orchard production was down on the previous year.

IMPROVED PRICES OUTWEIGH REDUCED PRODUCTION

Net cash income on the model increased 10 percent in 2010/11 to 228 800 driven by improved prices that outweighed the fall in production.

YIELDS DOWN

The cold winter in 2009 induced good bud break, but conditions during pollination in spring were difficult; August 2009 was warmer than average whilst October was much colder. Orchards growing gold kiwifruit and those at higher altitudes were particularly affected.

In 2010/11, green kiwifruit production decreased 3 percent to 8100 trays per hectare and gold kiwifruit production decreased 8 percent to 9900 trays per hectare.

Rainfall was 40 percent of normal levels for the six months to April 2010, resulting in a significant period of drought in the Bay of Plenty. Subsequently, the dry matter level of the kiwifruit crop was higher than usual, which resulted in a sweet flavoured 2010 crop receiving a good response from export markets.

GROWER PRICES UP

The orchard gate return (OGR) is the price growers receive for their fruit after deduction of all costs occurring after the crop is picked, such as marketing, packing, fruit loss and shipping costs. The average OGR per tray for green and gold kiwifruit in 2010/11 improved on the previous season, driven by strong demand and foreign exchange policies that mitigated the impact of the weaker euro. Seasonal undersupply was also a factor for the very high returns to growers of gold kiwifruit in 2010/11.

The model is using a Bay of Plenty-derived green OGR of $4.24 per tray (13 percent higher than the previous season), and gold OGR of $8.57 per tray (16 percent higher).

National average industry OGR per tray for the 2010 crops were:

- **green:** $4.21 per tray (12 percent higher than the previous season);
- **organic green:** $6.07 per tray (7 percent lower);
- **gold and organic gold:** $8.89 per tray (15 percent higher).

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

Overall, the OGR per hectare in the model improved for both green and gold kiwifruit in 2010/11; to $34 300 (up 10 percent) and $81 500 (up 2 percent) respectively.

POST-HARVEST COSTS

The cost of grading, packing, packaging and storing kiwifruit is deducted before growers receive their kiwifruit return. Most of the cost items are fixed expenses, with only small variations amongst monitored orchards. There were some marginal changes in some post-harvest costs in 2010/11 which resulted in a slight reduction in the overall per tray costs for gold kiwifruit compared with the previous year.

Fruit loss percentages decreased for all fruit types, which is the second consecutive year of improvement for green and gold fruit. Fruit loss percentages for the 2010 national crop were:

- **green:** 4.3 percent (4.8 percent in 2009/10);
- **organic green:** 3.0 percent (3.8 percent);
- **gold:** 2.4 percent (3.7 percent).

Income from other fruit crops, often a small area of avocados, and sundry income such as renting out tractors during harvest contributed $5300 (11 percent) to the model's revenue in 2010/11.

EXPENDITURE UP

Orchard working expenses in the model increased 4 percent in 20010/11 to $148 100, driven by increases in labour expenditure and general inflationary pressures on other inputs and overheads. On a per tray basis, working expenses increased 9 percent to $3.50 per tray, driven by the reduction in yield.

Total labour expenditure increased 7 percent in 2010/11 to $80 500 driven by higher minimum wage rates and more labour units used. Additional pruning was required over the 2010/11 summer as the result of significant rainfall driving undesirable vegetative growth. Pruning expenses increased 8 percent to $9800 per hectare as a result. Picking expenses in 2010/11 were unchanged, averaging $0.35 per tray for green kiwifruit and $0.50 per tray for gold kiwifruit.

Good pollination is a key determinant of fruit size and quality. The use of supplementary pollen, particularly on green kiwifruit orchards, had been trending upwards until the Psa outbreak in November 2010. Growers were unsure if supplementary pollen was a vector for Psa when it came time to pollinate their green orchard blocks and subsequently most growers refrained from using supplementary pollination. This is reflected in the model through the 11 percent reduction in pollination expenditure in 2010/11 to $1360 per hectare (8 hives per hectare). This reduction in the use of supplementary pollen appears to have had limited, if any, detectable impact on yields for the following years crop (2011).

Other working expenses in the model remained at similar levels at $50 300, with increased expenditure in some areas offset by savings elsewhere. Total overheads increased 6 percent in 2010/11 to $17 200 with general inflationary increases across the board.

NET RESULT IMPROVES SIGNIFICANTLY

The cash operating surplus in the model increased 21 percent in 2010/11 to $80 700, as net cash income increased by 5 percentage points more than the increase in orchard working expenses. Debt servicing costs in the model decreased 16 percent as a result of the term-loan interest rate reducing to 6 percent.

The orchard profit before tax increased 48 percent in 2010/11 to $54 800, a level not seen on the model since 2003/04. The economic orchard surplus increased 42 percent to $50 000 in 2010/11, returning 3.2 percent on total orchard assets.

TABLE 4: BAY OF PLENTY KIWIFRUIT ORCHARD MODEL POST-HARVEST COSTS

YEAR ENDED 31 MARCH	2009/10 PER CLASS 1 TRAY ($)		2010/11 PER CLASS 1 TRAY ($)	
	GREEN	GOLD	GREEN	GOLD
Packing and packaging	1.74	2.26	1.70	2.23
Pack differential	0.20	0.80	0.21	0.79
Base coolstorage	0.73		0.73	
Condition checking, repacking, and extended coolstorage	0.32		0.35	
Logistics	0.12		0.13	
Administration	0.03		0.02	
Total post-harvest costs	**3.14**	**4.26**	**3.14**	**4.25**

Off-orchard income continues to make a significant contribution towards meeting growers' living expenses (26 000 in the 2010/11 model). It is sourced from investment income, dividends from post-harvest entities and wages and salaries.

The ZESPRI®shares began the 2010/11 year with a value of $5.20 per share, based on traded prices. A 5:1 share split occurred in late 2010 to improve the alignment of the number of shares with fruit production (that is, the number of trays). The shares ended the year valued at 65 cents per share, down from an equivalent of $1.04 following the share split. The drop in share value is primarily a response to a reduction in profit as a result of ZESPRI® investing $12.9 million in the Psa response and an increase in the loyalty payment to growers from 15 cents to 25 cents per tray.

Returns on 65 000 ZESPRI® shares provided a cash dividend, net of tax, of $7510 (12 cents per share) for the model in 2010/11.

Growers have mixed views about what their orchard properties are currently worth given the uncertainty surrounding the potential long run impacts from Psa and the lack of orchard sales in the last 10 months. Industry commentators note that some orchard values may be constrained to bare land values if they cannot produce sustainable revenue streams from kiwifruit as a result of Psa infections. This uncertainty is reflected in a reduction of 8 percent in the value of land and buildings for the model as of 1 April 2011 (2011/12 opening value).

Commentators suggest that there will be some growers that will have to consider alternative land uses, temporarily or even permanently, such as grazing sheep or cattle, until tools are available to mitigate the impact of Psa.

The major banks report conservative ratios of lending to valuations for most growers, so most balance sheets can absorb reductions in land values; the model had a debt to asset ratio of 15 percent in 2010/11. However, there will be some growers with much higher debt ratios, such as those that have made significant investments into new varieties and/or new production blocks.

Industry commentators suggest that growers are making principal repayments on their term debts, reflected in the model with a $5000 principal repayment in 2010/11.

TABLE 5: BAY OF PLENTY WEATHER DATA

	RAINFALL (MM)			GROWING DEGREE DAYS[1] (GDD)		
MONTH	2009/10	2010/11	LONG-TERM AVERAGE	2009/10	2010/11	LONG-TERM AVERAGE
June	230	283	143	19	31	29
July	151	68	164	11	17	20
August	200	413	158	53	49	25
September	103	225	126	68	79	61
October	148	36	143	82	103	104
November	12	61	110	157	169	146
December	60	189	129	190	272	214
January	75	425	106	260	290	257
February	36	87	110	285	299	246
March	19	173	132	235	236	219
April	84	273	142	156	146	139
May	311	283	138	91	132	77
Total	**1429**	**2515**	**1600**	**1607**	**1823**	**1538**

Note
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.

Source
NIWA (Te Puke).

BUDGET FINANCIAL PERFORMANCE OF THE BAY OF PLENTY KIWIFRUIT ORCHARD MODEL IN 2011/12

Orchard profit before tax is expected to reduce 40 percent in 2011/12 to $33 000, due largely to a budgeted increase in on-orchard costs as growers implement Psa management programmes on their orchards.

HIGHER YIELDS TO MAINTAIN REVENUE

The 2010/11 Bay of Plenty growing season has been characterised by high summer rainfall, 57 percent above average, with the La Nina weather pattern bringing significant falls of warm rain from the north (refer to Table 5 for monthly rainfall and growing degree day information). The volcanic-origin soils in the region have generally withstood the very wet conditions well, although there was some localised flooding. Most of the soils used for growing kiwifruit are free draining and well aerated, which is important as kiwifruit vines are very quickly damaged by excess water around their roots.

High temperatures combined with the high rainfall drove vegetative growth and larger fruit size. Fruit matured slower than usual and picking was disrupted by rain.

Fruit dry matter levels are generally lower than in recent seasons, due to a combination of the lush growing conditions and fewer growers girdling kiwifruit to minimise creation of wounds that could provide entry sites for Psa infections.

Harvest was near completion at the time of compiling this report in early June 2011; thus figures reported here are tentative. The climatic conditions during the 2011 crop growing season are expected to have increased the average productivity of kiwifruit in 2011/12 across the Bay of Plenty to record levels. Green kiwifruit production is expected to increase 6 percent in 2011/12 to 8600 trays per hectare and gold kiwifruit production is expected to increase 14 percent to 11 300 trays per hectare.

ZESPRI® released an indicative range of fruit returns for the 2011/12 season which signal a similar return, albeit a slight reduction, to the 2010/11 season for green, organic green and gold kiwifruit. Growers expect their returns per tray to be tempered by the higher national production and unfavourable exchange rates.

Growers expect their post-harvest costs to increase by a few cents per tray as packhouses have invested in new capital equipment, such as bin washing facilities, to assist in minimising the risk of spreading Psa.

Overall it is anticipated that net cash income in the model will fall slightly in 2011/12 to $226 500, with higher production balancing a budgeted reduction in OGR per tray.

EXPENDITURE TO JUMP AS GROWERS BUDGET TO PROTECT ORCHARDS FROM PSA

Orchard working expenses for the model are expected to increase 14 percent in 2011/12 to $168 300, due largely to a budgeted increase in on-orchard costs as growers implement Psa management programmes on their orchards to protect their vines.

Industry commentators suggest that growers should be budgeting for a programme of protectant sprays to help prevent Psa infection and spread. The cost of an intensive management programme will be around $3000 per hectare, including the cost of application; a less intensive management programme with fewer sprays will cost around $2000 per hectare.

From time to time industry bodies, such as Kiwifruit Vine Health, may be able to provide growers with financial assistance to encourage area-wide adoption of disease-prevention measures. This will lessen the financial impact of implementing such Psa protectant programmes. For the purposes of the model, no Psa related financial assistance has been factored into the 2011/12 budget. The model has budgeted for Psa management expenditure of $3000 per hectare, or $15 000 in total for the model for the 2011/12 financial year.

Industry commentators suggest that most growers are not likely to resume application of supplementary pollen in 2011/12, or in future years, until they can be assured pollen is not a vector for Psa or that it can be verified to be clear of Psa. Trials by Plant and Food Research have confirmed that exposing Psa to certain temperature-time combinations can kill Psa while maintaining the viability of the pollen. The next step is to develop a commercial scale treatment along with appropriate tests to ensure pollen is free of Psa.

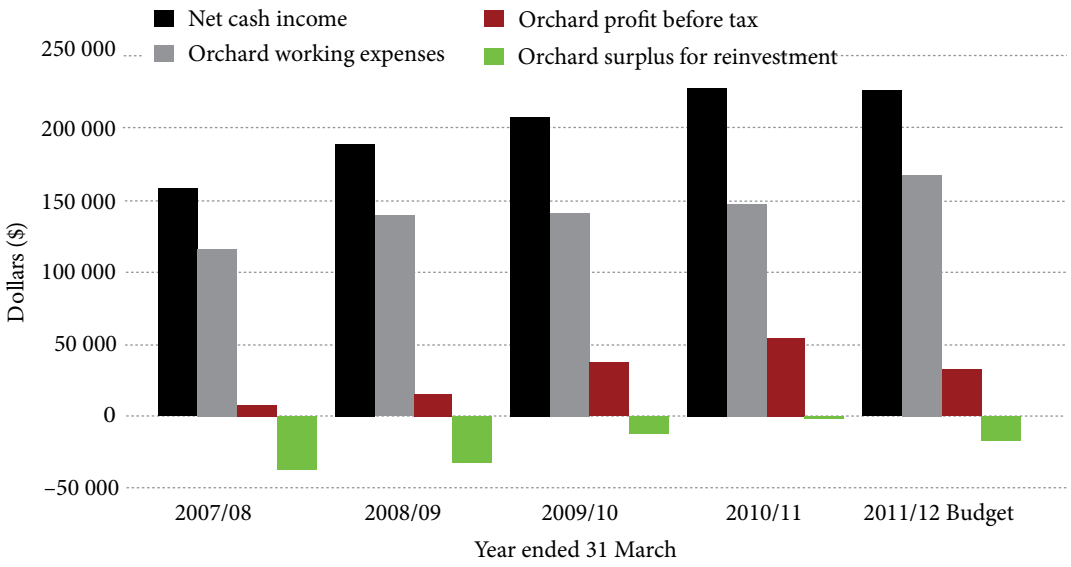
The model has maintained the level of expenditure on fertiliser; however, industry commentators suggest that some growers may consider lowering inputs to reduce vine vigour so that there are fewer summer pruning cuts required. This would be to minimise potential entry sites for Psa.

NET RESULT REMAINS POSITIVE, BUT LOWER

The model's profitability in 2011/12 is expected to decline as a result of additional Psa management costs. The cash operating surplus is budgeted to reduce 28 percent to $58 200 and orchard profit before tax is budgeted to reduce 40 percent to $33 000.

Growers expect that ZESPRI®'s profit margin will be reduced as funds are directed towards the Psa response, resulting in a budgeted dividend of 7 cents per share, providing a $4300 return (net of tax) to the model (down 43 percent).

FIGURE 1: BAY OF PLENTY KIWIFRUIT ORCHARD MODEL PROFITABILITY TRENDS



Note

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 the vorchard profit after tax plus depreciation less drawings.

INDUSTRY ISSUES AND DEVELOPMENTS

THE DETECTION OF BACTERIAL CANKER DISEASE, *PSEUDOMONAS SYRINGAE* PV. *ACTINIDIAE* (REFERRED TO AS Psa), IN NEW ZEALAND

A bacterial canker disease affecting kiwifruit, *Pseudomonas syringae* pv. *actinidiae,* was confirmed to be present in New Zealand in November 2010. This bacterial disease, known in Italy as "Batterosi" and in New Zealand by the acronym "Psa", was first identified on a Te Puke orchard after puzzling leaf symptoms. The disease can rapidly kill vines and one isolate, called Psa-V in New Zealand, is particularly virulent. A swift biosecurity response from industry and Government followed, leading to the establishment of Kiwifruit Vine Health Incorporated (KVH), an independent pan-industry organisation set up to lead the New Zealand kiwifruit industry response to the Psa incursion.

Psa impacts on the health of the vine, however. fruit is not known to carry the bacterium, nor are there any known impacts on animal or human health. No markets have placed restrictions on the trade of kiwifruit. At the time of writing this report, around 7 percent of New Zealand orchards have been confirmed as having Psa present in some capacity.

There is no current cure for the disease. Vine deaths occur from proliferation of the bacteria inside the vines conducting tissues, preventing the normal transport of fluids within the vine. Protectant materials can kill the bacteria on the vine surfaces but once the bacteria are within the vine, it is shielded from these materials.

Psa has been present in a number of countries for many years, such as Italy, Japan and South Korea, where outcomes have ranged from successfully managing it to whole orchards being wiped out. Chile, New Zealand's key competitor, recently identified that Psa was also present on some Chilean orchards.

In New Zealand, the disease has "arisen" in the heart of the major kiwifruit-producing region in Te Puke and has spread rapidly, despite introduction of practices to reduce the risk of its spread. The humid New Zealand climate is proving favourable to the establishment of the disease, and the disease presence coinciding with the wet La Nina summer has been particularly unfortunate.

The industry strategy is based on intensive containment. As the response has evolved, this has moved from a focus of cutting out affected vines to a spray-based preventive programme, and a national pest management and monitoring plan is in development. Extensive hygiene protocols are now also in place to help reduce the risk of spread, including washing of bins, vehicles and equipment between orchards, sanitising tools, sanitising footwear and wearing hairnets in orchards.

A comprehensive research and development programme, involving researchers from New Zealand and around the world, is underway to develop strategies to combat the disease. This includes testing of therapeutic products, development of methods to ensure pollen and propagating material do not harbour the disease, and increasing understanding of the disease biology, lifecycle and mode of infection.

GROWER MORALE AND BUSINESS VIABILITY PLANS

The confirmation of bacterial canker disease affecting kiwifruit in New Zealand in November 2010 has been a major blow to the morale of kiwifruit growers and industry stakeholders. This is in marked contrast to a year ago, when growers were generally very confident about their future in the New Zealand kiwifruit industry, particularly with improving returns and new opportunities to diversify into new kiwifruit varieties.

While Psa has brought a high level of uncertainty to the industry, New Zealand growers are confident that over time, they will be able to mitigate the impacts of Psa and continue to grow the kiwifruit industry.

VARIABILITY IN THE PERFORMANCE OF GREEN AND GOLD KIWIFRUIT ORCHARDS

Returns from growing kiwifruit vary significantly between orchards, depending on yield and the individual OGR per tray. Data is presented in Tables 6 and 7 showing the variability of the net orchard surplus per hectare amongst Bay of Plenty kiwifruit orchards in 2010/11. The net orchard surplus measures the difference between on-orchard income and on-orchard expenditure. The quartile yield and OGR per tray are interdependent as they are derived from the distribution of OGR per hectare across the Bay of Plenty.

The model produced a net orchard surplus of $8600 per hectare for green kiwifruit and $57 000 per hectare for gold kiwifruit in 2010/11.

The difference in performance between upper and lower quartiles is more influenced by yield than by the OGR per tray. Orchards in the upper performance quartile have 51 percent higher yields for green kiwifruit and 56 percent higher yields for gold kiwifruit, compared with the lower performance quartile. The OGR per tray is less influential; there is a 14 percent difference in OGR per tray between the upper and lower quartiles for green kiwifruit, and 6 percent for gold kiwifruit.

The net orchard surpluses in future years will be tempered by the Psa management programmes that growers implement on their orchards, budgeted at $3000 per hectare in the model for 2011/12. Orchards with marginal profitability before Psa, particularly some green orchards, will be the most impacted by the costs of Psa prevention and management. Some growers will likely have to modify their businesses to accommodate such expenditure.

TABLE 6: VARIABILITY OF ZESPRI® GREEN NET ORCHARD SURPLUS[1] PER HECTARE IN THE BAY OF PLENTY IN 2010/11

YEAR ENDED 31 MARCH			OGR[2] $/TRAY			
			MEAN 4.24	UPPER QUARTILE 4.26	MEDIAN 4.25	LOWER QUARTILE 3.73
TRAYS PRODUCED PER HECTARE	MEAN	8 100	**8 597**			
	UPPER QUARTILE	9 847		**15 590**	15 491	10 371
	MEDIAN	8 190		9 111	**9 029**	4 770
	LOWER QUARTILE	6 510		2 542	2 477	**–908**

Notes

1 Net orchard surplus is calculated as follows: total OGR per hectare less on orchard costs (pruning, thinning, other wages, picking costs per tray and other working expenses). The cost of picking is the only dynamic variable in this calculation.

2 Orchard gate return equals the fruit return paid by ZESPRI® less fruit loss and post-harvest costs plus Class 2 income and rebates.

Source
MAF and ZESPRI® International Limited.

TABLE 7: VARIABILITY OF ZESPRI® GOLD NET ORCHARD SURPLUS[1] PER HECTARE IN THE BAY OF PLENTY IN 2010/11

YEAR ENDED 31 MARCH			OGR[2] $/TRAY			
			MEAN 8.57	UPPER QUARTILE 8.68	MEDIAN 8.34	LOWER QUARTILE 8.19
TRAYS PRODUCED PER HECTARE	MEAN	9 900	**56 981**			
	UPPER QUARTILE	12 049		**75 649**	71 552	69 745
	MEDIAN	9 792		57 187	**53 857**	52 388
	LOWER QUARTILE	7 734		40 352	37 723	**36 562**

Notes

1 Net orchard surplus is calculated as follows: total OGR per hectare less on orchard costs (pruning, thinning, other wages, picking costs per tray and other working expenses). The cost of picking is the only dynamic variable in this calculation.

2 Orchard gate return equals the fruit return paid by ZESPRI® less fruit loss and post-harvest costs plus Class 2 income and rebates.

Source
MAF and ZESPRI® International Limited.

KIWIFRUIT BREEDING

The success of the ZESPRI® GOLD variety has stimulated interest in new kiwifruit varieties world-wide and growers believe new varieties will have a significant role in the continued growth of the kiwifruit industry. Growers believe that involvement in successful new varieties that expand the kiwifruit share of the fresh-fruit market will enhance orchard revenue.

In June 2010, ZESPRI® announced the commercialisation of three new kiwifruit varieties; these included an early gold kiwifruit G3 (205 hectares licensed), a late gold kiwifruit G9 (254 hectares licensed) and one early sweet green kiwifruit G14 (155 hectares licensed).

The Psa detection will lessen the appetite for some growers to convert to new varieties due to increased infection risks, particularly for growers in Te Puke. However, there remains strong demand for new varieties within the wider Bay of Plenty and other growing regions in New Zealand. This, combined with positive feedback on growing attributes, supply chain performance and in-market response, led ZESPRI® to announce in June 2011 that it will release a further 200 hectares of early gold kiwifruit G3, and 200 hectares of the early green kiwifruit G14 in 2011.

There are also other proprietary kiwifruit varieties available to growers.

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 Opotiki 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 2010 occur in the 2011/12 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 a 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, capital purchases, and development.

For more information on this model contact **Tony.Schischka@maf.govt.nz**

PUBLISHER

Ministry of Agriculture and Forestry
PO Box 2526, Wellington 6140, New Zealand
Tel +64 4 894 0100 or Freephone 0800 008 333
Email: policy.publications@maf.govt.nz
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