CANTERBURY ARABLE CROPPING

Key results from the Ministry for Primary Industries 2012 arable monitoring programme

KEY POINTS

- Crop yields and quality were much better in 2011/12 than in the previous year due to good growing conditions. Wheat yields reached 10.6 tonnes per hectare on average.
- Farm profit before tax for the model increased 136 percent to $448 700 in 2011/12 mainly due to higher yields increasing the amount of crop on hand. Higher prices for wheat and herbage seeds also contributed.
- Arable farmers are expecting to achieve high profit levels again in 2012/13, with a farm profit before tax of $425 500 anticipated for the model. A lift in cropping revenue is budgeted due to an increase in cropping area and a rise in prices for small seed crops. A large crop carryover from 2011/12 will help with cash flow.
- Investment in irrigation, either in new systems or upgrading existing systems, is deemed by many to be essential to maintain business viability.
- Arable farmers are cautiously optimistic as world food demand increases, while locally, the opportunities for dairy support increase.

Editor's Note

At the time of publication in mid-August, forward contract prices for wheat and barley crops harvested in 2013 are higher than those offered at the time of data collection in May-June 2012. For example, forward contract prices for feed wheat have risen from $365 to $400 per tonne delivered. This is a result of increasing global prices caused by overseas drought. These price lifts should further improve the budgeted financial outcome for arable farmers in 2012/13, above that presented in the following report.

Table 1: Key parameters, financial results and budget for the Canterbury arable cropping model

Year ended 30 June	2008/09	2009/10	2010/11	2011/12	2012/13 budget
Total effective area (ha)	300	300	300	300	300
Effective cropping area (ha)	259	263	253	261	276
Total crop revenue ($)	844 400	885 000	841 300	1 086 700	1 132 800
Sheep opening stock units	859	1 759	1 459	1 219	1 289
Lambing (%)	120	130	125	130	130
Gross farm revenue ($)	1 012 000	1 073 100	1 005 400	1 272 100	1 270 700
Farm working expenses ($)	597 400	566 000	567 000	610 500	640 300
Farm profit before tax ($)	198 000	264 300	190 400	448 700	425 500
Farm surplus for reinvestment [1]($)	48 200	125 800	208 900	229 100	401 300

Notes
The Canterbury arable cropping model is based on an owner-operator business structure.
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 farm profit after tax plus depreciation plus stock value adjustments less drawings.

Table 2: Canterbury arable cropping model crop areas

Year ended 30 June	2010/11 (ha)	2011/12 (ha)	2012/13 budget (ha)
Wheat	82	79	89
Barley	33	33	36
Other cereals	4	4	3
Grass seeds	41	46	52
Clover seeds	12	16	15
Vegetable/brassica seeds	20	17	18
Other seeds	11	19	11
Pulses	22	9	10
Silage crops	12	25	25
Process/fresh vegetable crops	16	13	17
Total crop area	**253**	**261**	**276**
Effective area	300	300	300
Percent of effective area in crop	84%	87%	92%

Table 3: Canterbury arable cropping model budget

	2010/11	2011/12		2012/13 budget	
	Whole farm ($)	Whole farm ($)	Per ha ($)	Whole farm ($)	Per ha ($)
Revenue					
Cereals	358 500	411 650		488 650	
Small seeds	332 100	362 550		503 000	
Other crops	97 500	96 000		111 700	
Process/fresh vegetables	58 000	54 300		54 400	
Land leased for cropping	7 000	14 000		25 850	
Crop residues	55 600	48 400		57 000	
Change in value of crop on hand	–67 400	99 800		–107 800	
Total crop revenue	**841 300**	**1 086 700**	**3 622**	**1 132 800**	**3 776**
Sheep income (including wool)	242 600	243 200	811	209 600	699
Grazing income	63 500	45 300	151	52 100	174
Other farm income	18 000	13 200	44	13 000	43
Less:					
Sheep purchases	123 600	127 000	423	115 400	385
Stock value adjustment	–36 400	10 700	36	–21 400	–71
Gross farm revenue	**1 005 400**	**1 272 100**	**4 240**	**1 270 700**	**4 236**
Farm working expenses	**567 000**	**610 500**	**2 035**	**640 300**	**2 134**
Cash operating surplus	**438 400**	**661 600**	**2 205**	**630 400**	**2 101**
Interest	173 500	143 900	480	133 300	444
Rent and/or leases	0	0	0	0	0
Depreciation	74 500	69 000	230	71 600	239
Farm profit before tax	**190 400**	**448 700**	**1 496**	**425 500**	**1 418**
Tax	98 100	112 000	373	155 000	517
Farm profit after tax	**92 300**	**336 700**	**1 122**	**270 500**	**902**
Allocation of funds					
Add back depreciation	74 500	69 000	230	71 600	239
Reverse stock value adjustment	103 800	–110 600	–369	129 200	431
Drawings/living expenses	61 800	66 000	220	70 000	233
Farm surplus for reinvestment[1]	**208 900**	**229 100**	**764**	**401 300**	**1 338**
Reinvestment					
Net capital purchases	38 000	86 000	287	40 000	133
Development	92 000	146 000	487	25 000	83
Principal repayments	60 700	72 800	243	78 000	260
Farm cash surplus/deficit	**18 200**	**–75 700**	**–252**	**258 300**	**861**
Other cash sources					
New borrowings	58 000	78 500	262	0	0
Introduced funds	0	0	0	0	0
Off-farm income	0	0	0	0	0
Net cash position	**76 100**	**2 800**	**9**	**258 300**	**861**
Assets and liabilities					
Farm, forest and building (opening)	7 600 000	7 600 000	25 333	8 700 000	29 000
Plant and machinery (opening)	496 900	460 400	1 535	477 300	1 591
Stock valuation (opening)	220 900	184 500	615	195 300	651
Crop valuation (opening)	631 900	564 500	1 882	664 300	2 214
Other farm related investments (opening)	0	0	0	0	0
Total farm assets (opening)	**8 949 700**	**8 809 400**	**29 365**	**10 036 900**	**33 456**
Total liabilities (opening)	1 931 600	1 928 900	6 430	1 929 700	6 432
Total equity	**7 018 100**	**6 880 500**	**22 935**	**8 107 200**	**27 024**

Notes
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 farm profit after tax plus depreciation plus stock value adjustments less drawings.

Table 4: Canterbury arable cropping model expenditure

	2010/11	2011/12		2012/13 budget	
	Whole farm ($)	Whole farm ($)	Per ha ($)	Whole farm ($)	Per ha ($)
Farm working expenses					
Permanent wages	45 000	49 800	166	51 000	170
Casual wages	6 000	6 000	20	6 000	20
ACC - employees	900	1 200	4	1 350	5
Total labour expenses	**51 900**	**57 000**	**190**	**58 350**	**195**
Contracting (including harvesting/drying)	27 000	28 500	95	19 800	66
Animal health	4 200	4 500	15	4 500	15
Breeding	0	0	0	0	0
Electricity	21 600	18 000	60	24 600	82
Feed (hay and silage)	9 000	9 000	30	9 000	30
Feed (crops)	0	0	0	0	0
Feed (grazing)	4 200	5 400	18	3 600	12
Feed (other)	2 100	1 800	6	1 800	6
Fertiliser	112 950	110 550	369	126 250	421
Lime	2 400	7 550	25	7 550	25
Freight	20 100	24 000	80	27 000	90
Seed dressing	29 100	36 000	120	34 500	115
Seeds	35 260	30 000	100	31 800	106
Shearing costs	6 300	6 300	21	6 500	22
Weed and pest control	85 050	94 500	315	96 300	321
Fuel	32 400	38 700	129	38 700	129
Vehicle costs (excluding fuel)	24 900	23 400	78	23 100	77
Repairs and maintenance	35 700	40 800	136	35 700	119
Total other working expenses	**452 260**	**479 000**	**1 597**	**490 700**	**1 636**
Communications (phone and mail)	4 200	4 500	15	4 500	15
Accountancy	6 000	6 000	20	6 000	20
Legal and consultancy	3 600	3 600	12	4 500	15
Other administration	4 800	4 800	16	4 800	16
Rates	11 400	11 700	39	14 400	48
Insurance	16 500	16 800	56	27 000	90
Water and related charges	8 400	16 800	56	16 800	56
Other expenditure (including ACC - owners)	7 960	10 300	34	13 250	44
Total overhead expenses	**62 860**	**74 500**	**248**	**91 250**	**304**
Total farm working expenses	**567 010**	**610 500**	**2 035**	**640 300**	**2 134**
Calculated ratios					
Economic farm surplus (EFS)[1]	288 900	517 600	1 725	483 800	1 613
Farm working expenses/GFR[2]	56%	48%		50%	
EFS/total farm assets	3.2%	5.9%		4.8%	
EFS less interest and lease/equity	1.6%	5.4%		4.3%	
Interest+rent+lease/GFR	17%	11%		10%	
EFS/GFR	29%	41%		38%	
Wages of management	75 000	75 000	250	75 000	250

Notes
1 EFS is calculated as follows: gross farm revenue less farm 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 farm assets to a maximum of $75 000.
2 Gross farm revenue.

FINANCIAL PERFORMANCE OF THE CANTERBURY ARABLE CROPPING MODEL IN 2011/12

Farm profit before tax increased 136 percent to $448 700 for the year ended June 2012. This was influenced by good yields and prices for cereals and seed crops and a significant lift in the volume of crop on hand.

The model size remained at 300 hectares, with the crop area increasing 8 hectares to 261 hectares.

NEAR RECORD YIELDS PROPEL CROP REVENUE

Total gross revenue from crops, after adjustments for stock on hand, increased 29 percent to $1.09 million in 2011/12. More crops were grown, in particular, silage and seed crops.

Favourable climatic conditions during the 2011/12 growing season resulted in above-average yields for most crops. Wheat yields were up around 3 tonnes per hectare on last season, at 10.6 tonnes per hectare. Ryegrass seed yields also exceeded expectations, at 1760 kilograms per hectare.

Higher production resulted in higher closing stocks of feed wheat and barley at year end. Most of the 2011/12 feed wheat and barley crops were contracted, meaning buyers were in no rush to purchase free-market feed grain. Conversely, milling wheat was in short supply pre-harvest, so was delivered to the mills steadily during the first half of 2012, helping to draw down stocks from the previous year.

Cereal production increased significantly in 2011/12 due to an increase in planted area and above-average yields in the main producing regions. The Arable Industry Marketing Initiative farm survey suggests 2012 national production for feed wheat was 415 100 tonnes, up 65 percent, while feed barley production was 419 400 tonnes, up 36 percent on 2010/11.

Quality maintained during frustrating harvest

The 2012 harvest season in Canterbury was continually disrupted by wet weather, in particular, during February. However, expected losses in grain and seed quality generally did not eventuate. Milling wheat had slightly below average protein levels but excellent protein quality.

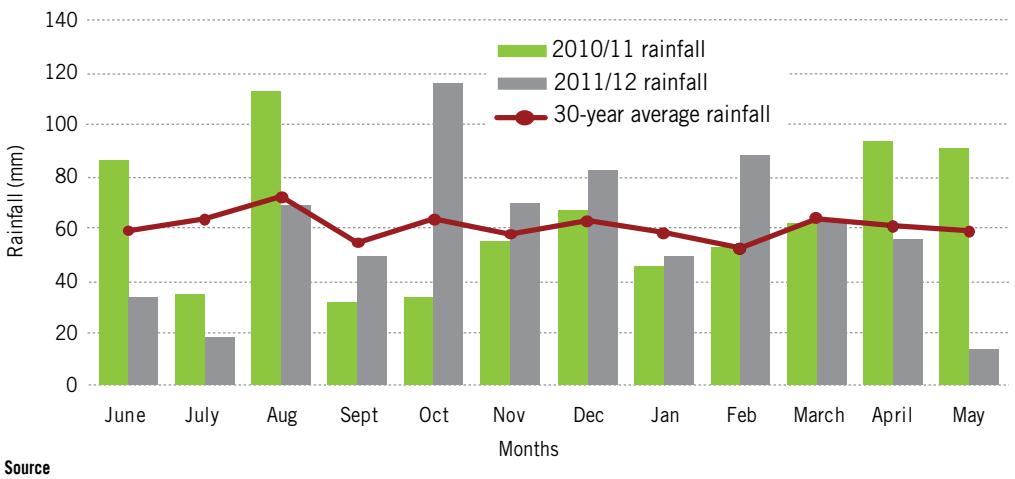
Lower than average temperatures during grain fill in December 2011 and January 2012 prevented sprouting and helped starch levels to build up in feed grains. Germination tests of seed crops to date have been satisfactory. However, grain and seed that went into storage with higher than ideal moisture contents are at risk of losing quality during the year.

Prices improve

Contract prices for cereals were good at the beginning of the 2011/12 season, following strong global prices towards the end of 2010/11. Farmers were able to secure contracts for premium milling wheat at $465 per tonne delivered; feed wheat at $415 per tonne delivered; and feed barley at $390 per tonne delivered.

Free-market prices for feed wheat and barley weakened to around $350 per tonne in the first half of 2012 due to over supply from good yields.

Figure 1: Mid-Canterbury rainfall



Source
NIWA (Winchmore).

Average prices received across the monitored farms lifted about $30 per tonne for wheat to $400 per tonne in 2011/12 but remained stable for barley at $370 per tonne.

Herbage seed prices rose nearly 10 percent across a range of species at up to $2.20 per kilogram for proprietary perennial ryegrass and up to $5.50 per kilogram for proprietary white clover cultivars.

Lamb trading margins in 2011/12 were excellent at $35 to $55 per head and, consequently, additional lambs were finished. The model had 1500 finished lambs in 2011/12 compared with 1400 in the previous year.

EXPENSES CONTINUE TO CREEP

Total farm working expenses rose 8 percent on 2010/11 levels to $610 500, or $2035 per hectare, influenced by an increase in crop area and a wetter growing season.

Frequent rain events during the growing season led to a lift in expenditure on weed and pest control by 11 percent to $94 500, as more herbicides, growth regulators and fungicides were used. Seed dressing increased 24 percent to $36 000 due to increased small seed areas and yields plus delayed dressing of the 2011 harvest.

Fuel expenditure rose 19 percent to $38 700 due to increased crop area plus the need for more crop drying because of higher moisture content in seed crops and grains at harvest.

Freight expenses were up 19 percent to $24 000 due to relatively more milling wheat being delivered to the mills (some earlier than usual), while the price of fuel also increased.

Water charges doubled to $16 800 due to a combination of the first full season of annual charges for some new irrigation schemes, and new annual charges on irrigation consents by Environment Canterbury.

The wet season helped to reduce electricity expenses by 17 percent to $18 000, with less irrigation needed.

GOOD NET RESULT

Due to the lift in revenue in 2011/12, the farm working expenses to gross farm revenue ratio dropped to 48 percent from 56 percent in 2010/11.

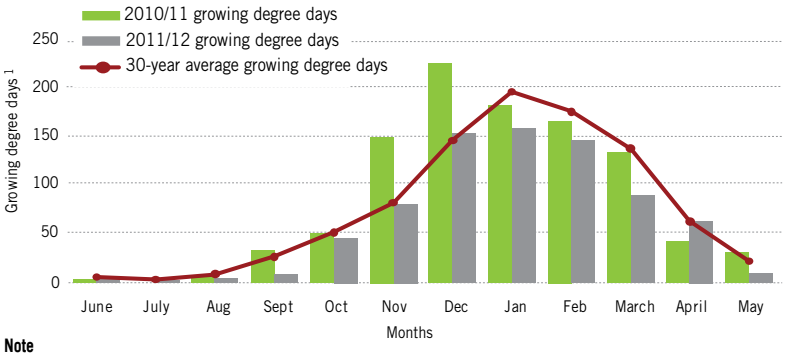
Interest expenses for the model fell 17 percent from $173 500 to $143 900, despite new borrowing in 2010/11. Term interest rates dropped to an average of 6.6 percent. Most farms are on short-term fixed-rate contracts or floating rates, which means interest expenses are reducing, thereby helping farmers to pay off overdrafts and make principal repayments.

Farm profit before tax increased 136 percent to $448 700. Most farmers have sought to reassess their provisional tax payments for 2011/12 within the year, rather than carrying forward a large tax liability into 2012/13. The model reflects this position, with tax payments of $112 000 made in 2011/12.

The model reported a satisfactory farm surplus for reinvestment at $229 100, allowing for significant investments in capital items and development work on-farm. Typical capital purchases by the monitored farms were tractors, cultivation implements, motorbikes and combine harvester upgrades. Development is mainly in irrigation, sheds and silos.

Farmers believe that farm values have increased because of investment in irrigation and a short-lived surge in the property market at the end of 2011 and beginning of 2012. Land and building values for the model increased during 2011/12 to reach $29 000 per hectare at year end, up from around $25 000 at the start of the year. Land values for arable farms of course vary greatly across the Canterbury region, depending on soil type and whether they are dryland or irrigated farms.

Figure 2: Mid-Canterbury growing degree days



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 (Winchmore).

BUDGET FINANCIAL PERFORMANCE OF THE CANTERBURY ARABLE CROPPING MODEL IN 2012/13

Arable farmers are anticipating another excellent financial outcome in 2012/13, with a profit before tax of $425 500 budgeted for the model.

HIGH REVENUE TO BE MAINTAINED

Total crop revenue is anticipated to increase 4 percent to $1.13 million in 2012/13, driven by increased crop area and a lift in prices for small seed crops.

The contracted area for ryegrass production for export is up significantly in the Canterbury region for the 2013 harvest, due to a seasonal supply shortfall in Europe. Proprietary ryegrass and white clover contract prices are up 20 percent and 15 percent respectively, albeit constrained by the high New Zealand dollar. Contracted production and prices of specialist vegetable seed are not expected to change in 2012/13, due to balanced supply and demand.

Income from grazing is expected to remain relatively stable, mainly for dairy support. The model is budgeting on lower sheep income due to a reduction in the number of lambs traded and in the expected trading margin to $30 per head at best.

Large opening feed grain stocks

Following good yields in the 2012 harvest, there are near record opening stocks of feed grains both in New Zealand and Australia. Forward contract prices for 2013 crops are being reported at $365 per tonne delivered, as at June 2012.

High protein bread wheat and low protein biscuit wheat are in short supply. Forward contract prices for 2013 crops offer a higher premium than usual for premium milling and biscuit wheat, at $430 and $420 per tonne respectively.

Dairy support evolving

Fewer dairy cows were wintered in 2012 across the monitored farms compared with recent years. This is likely due to good feed surpluses on dairy run-offs, plus extra silage cut from milking platforms.

Arable farms grew more silage in 2011/12 to sell to dairy farms including grass and maize silage, and lucerne baleage. This trend is set to continue, as shown by the increase in total crop area for silage from 5 percent in 2010/11 to 9 percent in 2012/13.

MODERATE INCREASE IN EXPENDITURE

Farmers anticipate being able to hold expenditure in 2012/13 to an overall 5 percent increase. This would hold the ratio of farm working expenses to gross farm revenue at 50 percent, which is considered a healthy level.

The main drivers for the expected lift in farm working expenses are:

- a return to typical electricity use for irrigation;
- increased freight due to high production in 2011/12;
- higher fertiliser prices;
- increased compliance costs especially with regard to resource consents; and
- higher insurance premiums, in particular for farm buildings.

Industry commentators expect the ratio of farm working expenses to gross farm income to rise to a more usual 55 percent to 60 percent in 2013/14, with lower revenue expected from the sale of the 2013 crop due to lower contract prices.

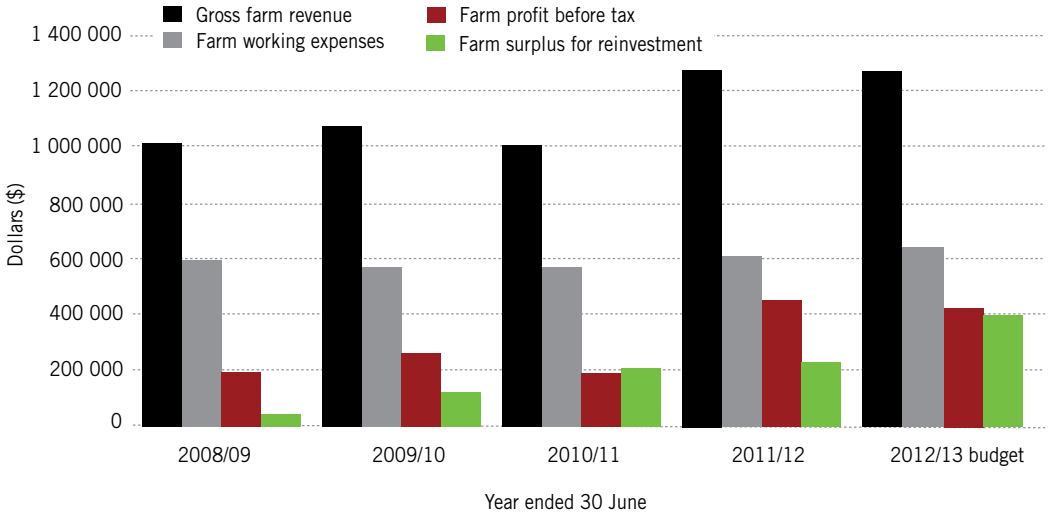
NET RESULT REMAINS POSITIVE

Arable farmers are anticipating another excellent financial outcome in 2012/13, with a profit before tax of $425 500 budgeted for the model. Accountants and farmers are anticipating another year of increased tax payments and are making provisions accordingly.

Despite the lift in tax payments, farmers anticipate substantial farm surpluses for reinvestment. These surpluses are likely to be used to repay debt.

Development expenditure is expected to reduce after a two- to three-year period of irrigation investment on the monitored farms. Farmers now expect a period of consolidation, after these recent infrastructural developments.

Figure 3: Canterbury arable cropping model profitability trends



INDUSTRY ISSUES AND DEVELOPMENTS

FARMER MORALE AND BUSINESS VIABILITY PLANS

Morale amongst most arable farmers has been boosted by good financial outcomes in 2011/12 and prospects of sustained profitability and good cash flow in 2012/13.

Many farmers in the Canterbury region regard irrigation as essential. It sustains the viability of their business by protecting from major financial losses in drought years and provides consistent production volumes that buyers can rely on. A viable business, underpinned by irrigation, gives more chance of succession within the family farming business. Generally, farmers will invest in irrigation rather than in more land.

Some farmers are holding back from other farm development and capital expenditure in anticipation of pending irrigation schemes in the Canterbury region. By managing debt now, they hope to have stronger balance sheets later when they need to secure finance for irrigation development.

Proactive farmers have invested in on-farm drying systems for drying grain and seed crops harvested in high-humidity weather. Seed with high moisture levels will spoil during storage. Growers who did not have this key infrastructure during the wet 2012 harvest have realised their economic vulnerability. Many are now investigating the development of drying systems.

Arable farmers are constantly monitoring the economics of dairy farming. Consistent cash flow, less harvest risk, ease of marketing, profitability and farm succession are the main reasons cited by farmers when considering conversion to dairy production.

FARMER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Each year, farmers have more working capital committed but the same inherent risks of crop failure. Many are choosing crop options that involve less working capital outlay and less production risk, while saving on overdraft interest. Examples are forage crops for contract grazing and silage crops sold standing. Moreover, these options have fewer labour requirements and better cash flow, for similar income.

Increasingly, arable farms have dairy farm neighbours. This provides further opportunities for dairy support where cartage and/or stock walking distance is minimal. This reduces the amount of fuel, time and labour expenses incurred by the arable farmer, compared with delivering grain and seed to the main centres. It reduces the price of "landed" supplementary feed to the dairy farm and the distance travelled when regularly checking on stock grazed off-farm.

Most dairy farms require support from other farms in terms of grazing and supplementary feed. Each dairy conversion brings new opportunities for arable farmers to increase trade with dairy farmers, giving arable farmers alternative markets for their produce.

Seed companies are aware of this competition for land use and are having to pay higher prices to secure land for seed multiplication.

Grass grub control

Farmers are concerned about the potential deregistration of diazinon in New Zealand as a result of the on-going review of this organophosphate by the Environmental Protection Authority. Diazinon is used by arable farmers to control grass grub, a significant pest of several crops, and is deemed to be the most effective product currently available.

ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT

Over two-thirds of the monitored farms are irrigated and half of these have been undergoing irrigation reinvestment or development during 2011/12. If short of irrigation water, farmers are watching for opportunities to contract additional volumes, in expectation that the growing dairy industry will require more water in the future. Recognising that water allocations are limited, farmers are upgrading irrigation hardware and investing in new technologies to increase water-use efficiency.

Arable farmers understand and respect the concept of using nutrients efficiently to prevent losses from farm systems and protect water quality. There is some trepidation about how regional councils might set and manage limits for water quality in the future as the national policy statement for fresh water management is implemented. Farmers are concerned about potential compliance costs. They are also concerned about what tools or instruments might be used in a regulatory plan to measure nutrient loss and their likely accuracy.

INFORMATION ABOUT THE MODEL

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

The model is created from information drawn from 18 arable farms and a wide cross-section of agribusiness representatives. The aim of the model is to typify an average arable farm for Canterbury. Budget figures are averaged from the contributing properties and adjusted to represent a real arable farm. Income figures include income from crops and stock, off-farm income, new borrowing, and other cash income. Expenditure figures include costs of production, debt, leasing, drawings, and development and capital purchases.

The monitored farms generate more than 50 percent of their income from growing crops. They are generally either more than 75 percent irrigated or are located in usually 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.

For further information on the model contact: **Murray.Doak@mpi.govt.nz**

Ministry for Primary Industries
PO Box 2526, Wellington 6140, New Zealand
Tel +64 4 894 0100 or Freephone 0800 00 83 33
Email: **brand@mpi.govt.nz**
Web: **www.mpi.govt.nz**

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