

# MAIZE



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

## KEY POINTS

- › Yields of maize grain and silage crops were up 10 percent on average levels in 2008/09 due to favourable weather conditions.
- › Grain and silage growers who contracted crops early in the 2008/09 season received record market prices; however by mid season, supply contracts were scarce. The spot market price crashed to less than the cost of production in some instances and many supply contracts for maize silage in particular were negotiated downwards later in the season. Some growers have been affected financially by end-users reneging on contracts.
- › Costs for both grain and maize silage rose 26 percent in 2008/09, mainly due to fuel and fertiliser price increases. Prices for these inputs are expected to fall in 2009/10 leading to a 12 percent reduction in total expenses to \$2994 per hectare for maize grain and \$4359 per hectare for maize silage.
- › Gross margins for maize grain reached a height of \$1868 per hectare; double that of the previous year. Gross margins for maize silage also reached new heights, improving almost three-fold to \$3482 per hectare.
- › The budget gross margins for 2009/10 are expected to return to 2007/08 levels.

»» TABLE 1: SUMMARY OF MAIZE GRAIN GROSS MARGINS<sup>1</sup>

YEAR ENDED 30 JUNE	2005/06	2006/07	2007/08	2008/09	2009/10 BUDGET
Yield (t/ha)	11.0	10.5	10.0	11.5	11.0
Price (\$/t)	275	295	365	460	360
Total costs (\$/ha) <sup>2</sup>	2 178	2 385	2 711	3 423	2 994
Gross revenue (\$/ha)	3 025	3 098	3 650	5 290	3 960
Gross margins (\$/ha)	847	712	939	1 868	966

### Notes

1 Details of the gross margins are found in Table 3 at the end of this chapter.

2 Lease land costs not included.

### Source

Cropright Independent Agronomy.

»» TABLE 2: SUMMARY OF MAIZE SILAGE GROSS MARGINS<sup>1</sup>

YEAR ENDED 30 JUNE	2005/06	2006/07	2007/08	2008/09	2009/10 BUDGET
Yield (kgDM/ha) <sup>2</sup>	21 000	19 500	17 500	21 500	19 500
Price (\$/kgDM) "in the stack"	0.22	0.24	0.29	0.39	0.28
Total costs (\$/ha) <sup>3</sup>	3 288	3 405	3 905	4 903	4 359
Gross revenue (\$/ha)	4 585	4 610	5 120	8 385	5 460
Gross margins (\$/ha)	1 297	1 205	1 215	3 482	1 101

### Notes

1 Details of the gross margins are found in Table 4 at the end of this chapter.

2 DM - dry matter.

3 Lease land costs not included.

### Source

Cropright Independent Agronomy.



## FINANCIAL PERFORMANCE OF MAIZE IN 2008/09

The financial performance of Waikato maize grain and silage crops reached record levels in the 2008/09 season as a result of higher than average yields and prices. Gross margins for maize grain reached \$1868 per hectare; double that of the previous year. The performance of maize silage was even better and saw gross margins improve almost three-fold to \$3482 per hectare.



### YIELD

Grain yields were up from an average 10.5 tonnes per hectare over the past three years to 11.5 tonnes per hectare and ranged from 7.0 to 13.5 tonnes per hectare. Silage yields were up from an average 17 500 kilograms of dry matter per hectare in 2007/08 to 21 500 kilograms of dry matter per hectare and ranged from 16 000 to 25 000 kilograms of dry matter per hectare.

Higher than average yields resulted from slightly above average rainfall and heat units over the season.

### COSTS

Total growing and harvesting costs for 2008/09 maize grain and silage crops increased by 26 percent, mainly driven by fertiliser and fuel price increases. Contractors also increased labour costs in response to rising wage rates and other labour related charges.

Wet conditions delayed grain harvest and necessitated more grain drying than in 2007/08. As a result grain drying expenses were up 11 percent to almost \$500 per hectare in 2008/09.

### GRAIN PRICES

Prior to planting, spot market maize grain prices reached record highs of \$485 per tonne. These prices were driven by a world shortage of feed grains, demand for bioethanol feed stocks and high demand for supplementary feeds by the dairy sector. However, these high prices were short-lived and only growers who committed to contracts early in the season were able to lock in at high prices of about \$460 per tonne. Global market conditions deteriorated as the season progressed leaving even some long-term maize grain growers struggling to attract formal contracts.

With world prices unwinding, domestic buyers became unwilling to pay the prices that growers demanded. Many switched from maize grain to other grain or feed types. The domestic maize grain trade stalled in October 2008, which led to reduced cash flows (for both growers and merchants) through the first half of 2009 with a subsequent increase in overdraft levels. Contracted grain from the previous season (2007/08) was also slow to move which added to the pressure on cash flows.

### SILAGE PRICES

A reduction in the dairy payout and good grass growth saw reduced demand for maize silage as the season unfolded. Those growers who contracted in September 2008 (or earlier) locked in prices that were satisfactory to the eventual dairy buyers. However, some contracts that were agreed at 30 cents per kilogram of dry matter (standing crop) tended to be renegotiated down towards 20 cents per kilogram of dry matter. Those who missed out on contracts saw the value of their crops decrease sometimes to below the cost of production (below 14.5 cents per kilogram of dry matter). The worst cases reported were of silage crops sold for 8 cents per kilogram of dry matter at harvest.

## BUDGET FINANCIAL PERFORMANCE OF MAIZE IN 2009/10

### WEATHER OUTLOOK

In the *Seasonal Climate Outlook for June to August 2009*, NIWA (May 2009) predicts that average to above average rainfalls will occur for the period. This should mean that cultivation is unlikely to be delayed and could lead to an earlier average planting date and an increased yield potential.

### PRICES AND MARKETS

Yield has a significant effect on maize gross margins. Despite the NIWA prediction of above average rainfall, the Waikato maize model assumes a return to long-run average yields in the budget year which in turn leads to a reduced gross margin.

Though the economic environment remains volatile growers expect the contract maize grain price for 2009/10 to be approximately \$360 per tonne, down 22 percent on the 2008/09 year and at a similar price point to 2007/08.

The *International Grains Council Grain Market Report* for June 2009 suggests world supplies of maize grain will be tight in 2009/10. The largest exporter, the USA, reports planting delays in the eastern corn belt, leading to reduced yields and a switch to later sown options like soyabeans. Demand for maize grain remains high in the USA as a feed stock for bioethanol production.

Sustained demand has meant that the decline in the world maize grain price appears to have bottomed out. Stabilisation in New Zealand's domestic price for maize grain may take some time as domestic stocks were still plentiful as of June 2009.

The decline in milk price forecast by the dairy industry for 2009/10 is likely to result in subdued demand for supplementary feeds including maize silage. Only a hard winter and poor grass growth in spring would see demand from the dairy industry increase back to the levels of recent years. The expectation for 2009/10 is that the value of standing maize silage will be around 19 cents per kilogram of dry matter (28 cents per kilogram of dry matter "in the stack"). This is back to 2007 levels and down from 30 cents per kilogram of dry matter in 2008/09.

### AREA

A Lincoln University study commissioned by the Foundation for Arable Research estimates the total area of maize (grain and silage) grown in New Zealand was 77 000 hectares in 2007/08 and 92 000 hectares in 2008/09. Reducing demand and gross margins will likely see the area planted in maize decline significantly in 2009/10.

### COSTS

Costs per hectare are budgeted to decrease by around 12 percent for both grain and silage crops, mainly influenced by reduced fertiliser and fuel prices. This brings total costs for maize grain to \$2994 per hectare and \$4359 per hectare for maize silage.

In response to the global economic crisis the global area in crop production fell in 2009. This has reduced the demand and price of fertiliser. In addition, the 2008/09 season saw growers of maize silage crops switch from using 12-10-10 fertiliser to the relatively less expensive option of DAP as a starter fertiliser. This trend looks set to continue for 2009 maize grain crops and is expected to result in a 35 percent reduction in fertiliser expenditure (including application) to \$610 per hectare for the upcoming season. Fertiliser expenditure for silage crops is expected to fall 30 percent to \$910 per hectare.

While fuel prices have retreated from the highs reached in the second half of 2008, early indications are that planting and harvest contractors are planning reductions of only 5 percent to their 2008 charge-out rates. Rising machinery costs, influenced in part by the weaker exchange rate with the US dollar, is given as part of the reason.



»» TABLE 3: MAIZE GRAIN GROSS MARGINS<sup>1</sup>

YEAR ENDED 30 JUNE	2005/06	2006/07	2007/08	2008/09	2009/10 BUDGET
<b>EXPENDITURE</b>					
Spraying out <sup>2</sup> (\$/ha)	54	54	54	93	85
Cultivation (\$/ha)	210	220	310	350	340
Lime <sup>2</sup> (\$/ha)	36	38	38	40	41
Base fertiliser (\$/ha)	114	114	127	240	195
Planting (\$/ha)	100	100	110	135	135
Seed @ 90 000 ha (\$/ha)	290	290	300	340	340
Seed treatment (\$/ha)	113	113	126	132	132
Starter fertiliser (\$/ha)	145	145	208	273	129
Weed control <sup>2</sup> (\$/ha)	151	145	140	152	140
Nitrogen side dressed <sup>2</sup> (\$/ha)	181	186	215	420	285
<b>Total growing costs (\$/ha)</b>	<b>1 394</b>	<b>1 405</b>	<b>1 628</b>	<b>2 175</b>	<b>1 822</b>
Interest on inputs for eight months (\$/ha)	79	84	105	131	97
Harvesting (\$/ha)	320	335	335	402	380
Cartage (\$/ha)	143	147	198	220	200
Drying (\$/ha)	242	414	445	495	495
<b>Total harvest costs (\$/ha)</b>	<b>705</b>	<b>896</b>	<b>978</b>	<b>1 117</b>	<b>1 075</b>
<b>Total costs (\$/ha)</b>	<b>2 178</b>	<b>2 385</b>	<b>2 711</b>	<b>3 423</b>	<b>2 994</b>
<b>REVENUE</b>					
Yield (t/ha)	11.0	10.5	10.0	11.5	11.0
Price (\$/t)	275	295	365	460	360
Gross revenue (\$/ha)	3 025	3 098	3 650	5 290	3 960
<b>Gross margin (\$/ha)</b>	<b>847</b>	<b>712</b>	<b>939</b>	<b>1 868</b>	<b>966</b>

**Notes**

1 Lease land costs not included.

2 Includes cartage and application.

**Source**

Cropright Independent Agronomy.

»» TABLE 4: MAIZE SILAGE GROSS MARGINS<sup>1</sup>

YEAR ENDED 30 JUNE	2005/06	2006/07	2007/08	2008/09	2009/10 BUDGET
<b>EXPENDITURE</b>					
Spraying out <sup>2</sup> (\$/ha)	54	54	54	93	80
Cultivation (\$/ha)	210	220	310	350	340
Lime <sup>2</sup> (\$/ha)	100	110	110	100	95
Base fertiliser (\$/ha)	271	271	341	491	469
Planting (\$/ha)	100	100	110	135	135
Seed @ 100 000 ha (\$/ha)	305	322	332	358	358
Seed treatment (\$/ha)	125	125	140	145	145
Starter fertiliser (\$/ha)	145	145	208	358	165
Weed control <sup>2</sup> (\$/ha)	151	145	140	152	140
Nitrogen side dressed <sup>3</sup> (\$/ha)	181	186	246	413	275
Redrilling annual ryegrass (\$/ha)	135	155	190	250	235
<b>Total growing costs (\$/ha)</b>	<b>1 777</b>	<b>1 833</b>	<b>2 181</b>	<b>2 845</b>	<b>2 437</b>
Interest on inputs for six months <sup>4</sup> (\$/ha)	76	82	104	128	97
Market value of standing crop (\$/kgDM) <sup>5</sup>	0.15	0.16	0.20	0.30	0.19
Harvesting (\$/ha)	450	450	485	625	600
Innoculant (\$/ha)	205	250	270	270	270
Cartage (\$/ha)	440	440	475	615	565
Stacking/rolling/covering (\$/ha)	340	350	390	420	390
<b>Total harvest costs (\$/ha)</b>	<b>1 435</b>	<b>1 490</b>	<b>1 620</b>	<b>1 930</b>	<b>1 825</b>
<b>Total costs (\$/ha)</b>	<b>3 288</b>	<b>3 405</b>	<b>3 905</b>	<b>4 903</b>	<b>4 359</b>
<b>REVENUE</b>					
Yield (kgDM/ha)	21 000	19 500	17 500	21 500	19 500
Price (\$/kgDM) "in the stack"	0.22	0.24	0.29	0.39	0.28
Gross revenue (\$/ha)	4 585	4 610	5 120	8 385	5 460
<b>Gross margin (\$/ha)</b>	<b>1 297</b>	<b>1 205</b>	<b>1 215</b>	<b>3 482</b>	<b>1 101</b>

**Notes**

1 Lease land costs 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.

**Source**

Cropright Independent Agronomy.

## INDUSTRY ISSUES AND DEVELOPMENTS

### GROWER MORALE AND BUSINESS VIABILITY PLANS

Falling demand and reduced prices for maize have impacted on grower morale. Growers with the lowest morale are those who purchased fuel and fertiliser at the price highs in 2008 but failed to lock in a sale during the market high (September to October 2008) after which prices fell significantly. Some growers lost a significant amount of money, and many still have a large quantity of grain or silage on hand. Even for those that did contract, product has been slow to move therefore cash flow has been tight.

Industry sources suggest that dairy farmers will grow a higher proportion of maize silage themselves in 2009/10, rather than buying it in, in an attempt to reduce their expenses.

Falls in international grain prices and in New Zealand milk prices during 2008/09 prompted some dairy farmers and merchants to pull out of signed contracts with maize growers in 2008/09, resulting in an increase in the number of litigation cases.

To maintain the viability of maize silage growing, there is an increasing trend towards supply contracts being on an area basis, so that a degree of profitability is secured. A standardised maize silage supply contract released in October 2008 by the Forage Trading Development Group aims to achieve a cross-sector agreed format for all silage contracts.

There is also a trend towards obtaining crop deposits from buyers – the size of the deposit sought is increasing as sellers seek an indication of goodwill.

### GROWER RESPONSE TO INPUT PRICE CHANGES AND SHORTAGES

Growers continue to match fertiliser use with crop requirements. However, those who have struggled financially in 2008/09 are likely to “mine” capital reserves of soil nutrients in the short-term.

### ENVIRONMENTAL AND NATURAL RESOURCE MANAGEMENT

Technological improvements such as GPS technologies, continue to mean that growers and contractors are avoiding over applying crop inputs by achieving more accurate placement and saving on energy (fuel) while doing so.

Growers are becoming increasingly aware of soil nitrogen testing, reducing the amount of nitrogen fertiliser when possible, especially where dairy effluent has been applied. Nutrient budgeting by farmers and fertiliser company representatives continues to be an increasing trend.

## FURTHER INFORMATION

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