



Australian Government
Grains Research and Development Corporation



Market Driven R&D Benefiting Growers

Stakeholder Report
2006-07



Grains
Research &
Development
Corporation

Postal address

Grains Research and Development Corporation
P O Box 5367
KINGSTON ACT 2604

Location

Level 1
40 Blackall Street
BARTON ACT 2600

Telephone: 02 6272 5525

Facsimile: 02 6271 6430

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1. 2004-05 at a Glance

1.1 Implementing GRDC's new strategic business plan—*The Way Forward*

In 2004-05 the GRDC began to implement its new strategic business plan, *The Way Forward*, which has the primary objective of ensuring that Australian graingrowers remain competitive in the global grain markets. *The Way Forward* is both supplementary and complementary to *Driving Innovation*, the Corporation's Five Year Research and Development Plan for 2002 to 2007, and articulates the GRDC's response to:

- The complex and dynamic research environment we currently work in
- Predictions for industry growth outlined in the Australian Grains Industry Strategy for 2005-25
- The rapid changes and consolidation occurring within the grains industry
- The changes occurring within state-based departments of agriculture
- The changing profile of the Australian graingrower.

These issues were identified during a review of strategic direction in 2004 that sought to identify how to better implement the GRDC's current Five Year R&D Plan and better align the Corporation with *Towards a Single Vision for the Australian Grains Industry: The Australian Grains Industry Strategy 2005-25*, which was released at Grains Week in April 2004.

The Way Forward identifies four principal pathways to market for R&D, four core strategies to achieve a range of specified objectives, and articulates a set of corporate values that aim to ensure superior performance in every aspect of the Corporation's business activities.

Paths to market

- better varieties faster
- better farming practices adopted faster
- new products
- building research capacity.

Core Strategies

- coordinate a national portfolio approach to grains R&D
- deliver against Australian Government priorities
- grow and leverage total grains R&D
- ensure R&D is market driven.

Corporate Values

- commitment and action in meeting our stakeholder/customer needs and exceeding their expectations
- winning as a team
- achievement of superior results
- creativity and innovation
- openness and trust in dealing with people
- performance-driven culture
- ethical behaviour in all our activities

The four paths to market formed the basis for an organisational restructure that took effect on 1 March 2005, as well as new output groups for statutory reporting purposes. The new output groups are evident in the GRDC's *Annual Operational Plan 2005-06* released at Grains Week in April 2005 and will feature in future Annual Reports.

The new business plan also includes the results of a situational analysis exploring key factors that impact on the GRDC's immediate business environment (for example, R&D partnerships) on a day-to-day basis, factors that impact on our broad business environment (for example, grain markets) over time, and possible organisational responses to them.

Two major initiatives implemented in 2004-05 provide clear examples of how the GRDC is putting its new strategic business plan into action. These are the introduction of a National Variety Trials program for the pre- and post-release evaluation of potential new crop varieties, and the establishment of Barley Breeding Australia under a National Barley Breeding Initiative. By implementing such initiatives under the strategic direction of *The Way Forward*, the GRDC will be a key driver in helping Australian graingrowers remain globally competitive.

1.2 Achievements in 2004-05

Key achievements for 2004-05 include the following:

- **The Way Forward**, a new planning document detailing the GRDC's strategic direction, commenced implementation through the GRDC *Annual Operational Plan 2005–06*, which specifies how four new output groups will contribute to achieving the GRDC's target outcomes and objectives.
- The reorganisation of the Company along four new lines of business representing key paths to market: namely, Better Varieties Faster, Better Farming Practices Adopted Faster, New Products, and Communication and Customer Services. The aim is to increase GRDC focus on outcomes and deliverables.
- The composition of the GRDC's three regional panels representing the northern, southern and western cropping zones, was renewed. Sixteen new panel members were appointed to work alongside the 12 continuing panel members. The composition of the panels has broadened in recent years to include people from further along the grains value chain. It now includes representatives from growers, researchers and agribusiness professionals.
- The development of the **National Variety Trials (NVT)** was concluded, and NVT began to be implemented for the pre- and post-release evaluation of potential new crop varieties.
- In the wheat, durum and barley-breeding programs, population development and testing was achieved against the defined schedule, overcoming earlier losses in material caused by drought and an outbreak of the wheat streak mosaic virus.
- Significant progress was made on the establishment of a nationally coordinated approach to barley breeding, to be progressively implemented from July 2005. Similar progress was made on a nationally coordinated approach to pulse breeding. The aim of these programs is to reduce fragmentation and duplication, improve operating efficiency, and ensure market signals are incorporated into breeding programs.
- Following approaches from industry, the GRDC Board agreed at Grains Week 2005 to facilitate the establishment of **Single Vision** for a period of two years at a cost of up to \$1 million per year. An interim Board with a chair and four directors was appointed in July 2005 and the CEO was appointed in September 2005.
 - Under *Single Vision*, a pan-industry body called the Grains Business Forum, representing the GRDC, ABB, AWB, CBH and GrainCorp, was created to address critical issues facing the Australian grains industry, including infrastructure and transport, communications, biotechnology and new end users, and environmental and economic sustainability.
 - The first task force has been established under the Grains Business Forum to investigate and report back on rail infrastructure and research and development needs of Australia's east coast.

- In order to obtain real time market signals and undertake R&D interpretation of these signals, GRDC has signed a **Memorandum of Understanding (MOU) with AWB Ltd**. The integration of market signals from commercial players like AWB is helping to fine-tune the investment agenda of GRDC.
- The GRDC and AWB Ltd jointly funded a **Study on the Wheat Market in China**, which was undertaken by the Australian National University. The Study has been completed and the R&D implications of the wheat market signals in China have been provided to the wheat breeders and other relevant players in Australia.
- Two new chickpea varieties, both with significantly improved resistance to ascochyta blight, were released. This improved resistance should lead to a resurgence of the crop in the southern and western regions.
- The Precision Agriculture Initiative established in 2002–03 began to deliver new knowledge about the use of precision agriculture technology. Precision agriculture allows growers to strategically vary inputs in order to reduce their own costs and protect the environment. Importantly, the initiative is providing a clearer understanding of the benefits of zone farming for growers.
- The GRDC commenced the **Crop Biofactories Initiative**, a new four-year joint innovation agreement with CSIRO. The first phase will develop intellectual property platforms for the enzymatic synthesis of novel industrial oils, protein biopolymers and complex monomers.
- Joint winner of the **Gold Award for Quality of 2003-04 Annual Reports** in the CAC Act category.

2. GRDC Performance Evaluation

2.1 Grower Survey

In 1992, the GRDC began conducting annual tracking surveys to measure grower adoption behaviour and attitudes, gauge the impact of grains industry research outcomes, and assess organisational performance against a range of indicators established in *Driving Innovation*. During 2004-05 the GRDC improved its approach to surveying graingrowers by asking more GRDC-specific questions as part of the data collection process.

Grower rating of GRDC performance as an investor in grains research improved during 2004–05, with 74 percent rating it as fairly high to very high, up from 72 percent in 2003–04 (Figure 1). The survey also indicated that 78 percent of graingrowers had adopted new or improved agronomic practices in the past five years, and that 66 percent of growers believed they had directly benefited from GRDC specific activities over that same period. Regional breakdowns of these findings are shown in Figures 2 and 3 respectively.

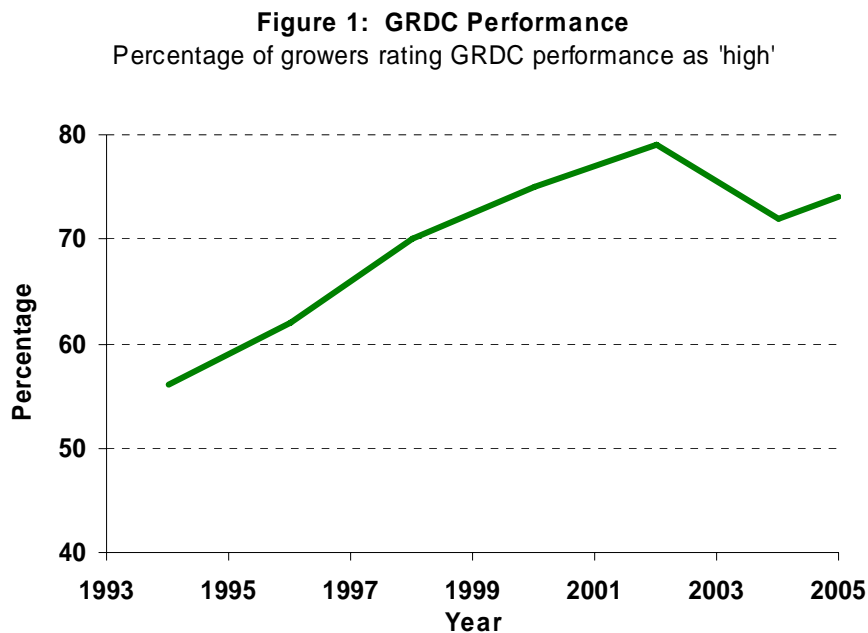


Figure 2: Australian growers' Adoption:
Percentage of growers adopting new or improved farming practices in the past 5 years

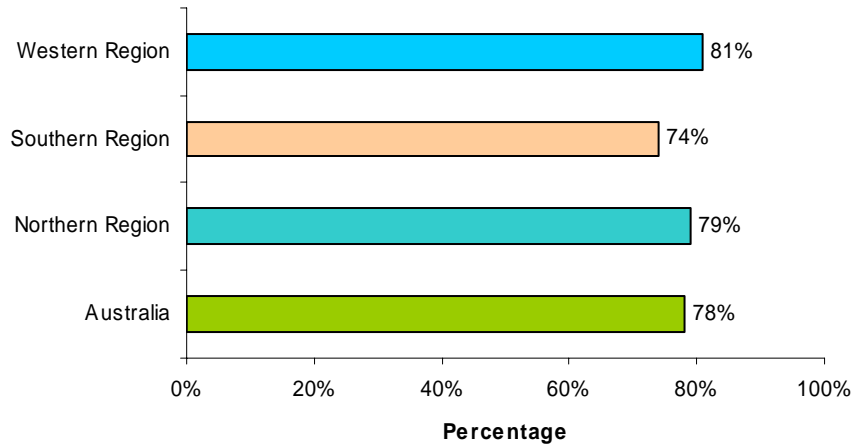
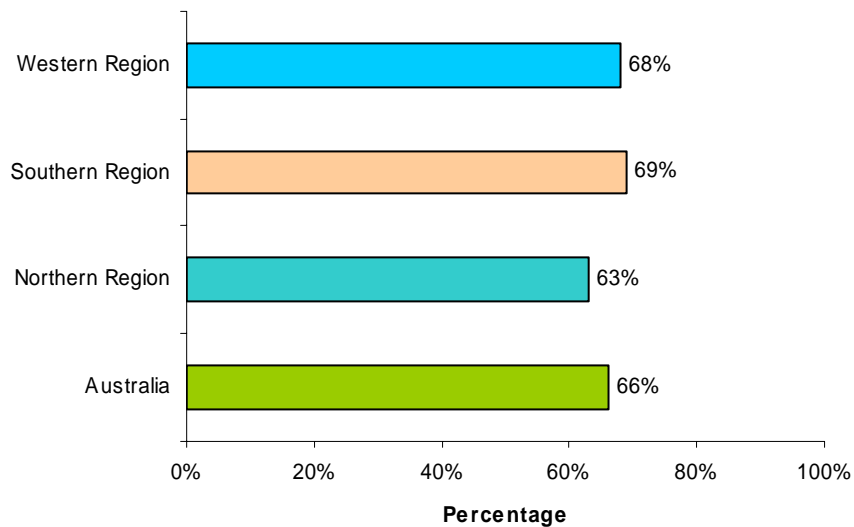


Figure 3: Australian growers' benefits
Percentage of growers directly benefiting from GRDC activities over the past five years



Of the growers surveyed in 2005, 78% claimed to have taken actions to adopt new or improved farming practices. Adoption levels of innovative farm practices included:

- soil testing for nutrients—89% of all growers surveyed
- crop rotations—88%
- nutrient budgeting—66%
- testing of leaf and root—55%
- gypsum—51%
- lime—40%
- monitoring available soil water—33%
- risk management tools—31%
- monitoring depth to watertable—28%
- formal business plan—21%
- environmental management system—18%
- other precision agriculture (such as GPS guidance, direct drill or yield mapping)—18%
- variable rate technology—16%
- controlled traffic—15%.

This year's results were similar to those in 2004, with significant increases in the use of controlled traffic and the use of technology to monitor available soil water.

2.2 Revenue and Expenditure

The following information on GRDC revenue and expenditure was included in a presentation given by the GRDC at the GCA Consult Meeting held on 13 October 2005.

Figure 4 shows that GRDC revenue declined from \$122.3m in 2003-04 to \$110m in 2004-05. The underlying driver for the \$12.3m revenue decline was the sharp fall in grain production and gross value of production during the 2002-03 drought, which will impact on revenue in the subsequent 2-3 years. Levy contributions fell by \$4.6m or 6.7% from \$68.8m in 2003-04 to \$64.2m in 2004-05, while Australian Government matching contributions fell by \$6.6m or 15.6% from \$42.3m in 2003-04 to \$35.7m in 2004-05.

Figure 4: GRDC Revenue

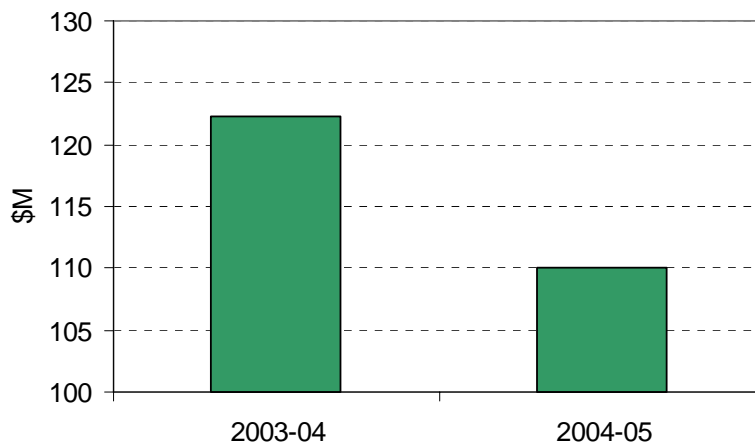


Figure 5: GRDC Expenditure

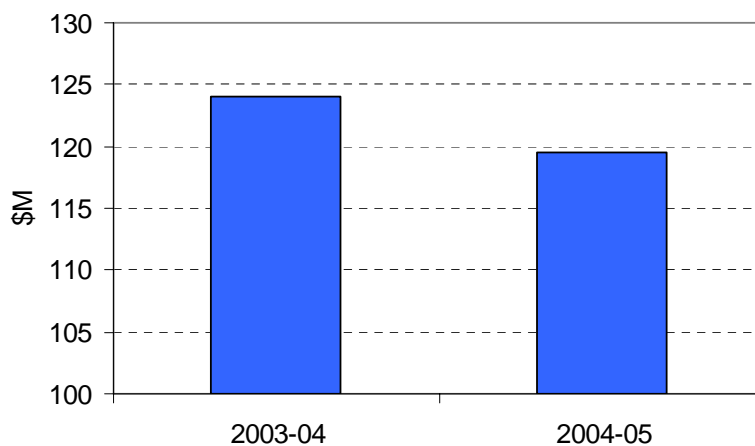


Figure 5 shows that GRDC expenditure decreased from \$124m in 2003-04 to \$119.5m in 2004-05. The underlying factor for the \$4.5m decline in expenditure was a \$6.1m or 5.5 percent decline in R&D investment from \$112.5 m in 2003-04 to \$106.4m in 2004-05. This was primarily due to lower expenditure resulting from the late start of *Single Vision* and other unspent funds related to a number of projects.

2.3 Graingrowers' Priorities

Similar to previous years the GRDC tailored its investment portfolio in 2004-05 to best address the research priorities identified by its stakeholders. The key graingrowers' priorities, identified through consultation with the Grains Council of Australia and through graingrower workshops, were also incorporated into the GRDC's Annual Operational Plan 2005-06.

Table 1 illustrates the interrelationship between graingrower priorities and government research priorities and how the GRDC achieved results in relation to these priorities during 2004-05.

Table 1: GRDC achievements against stakeholder priorities, 2004–05

Priorities*	Relevant GRDC investments
<p><i>Industry 1</i> Sustainability and resource management:</p> <ul style="list-style-type: none"> farming systems and rotations to protect and enhance the soil and water resource base genetic improvement for sustainability <p><i>NRP 1</i> An environmentally sustainable Australia</p> <p><i>RRDP 1</i> Sustainable natural resource management</p>	<p>GRDC projects with a particular emphasis on sustainability included:</p> <ul style="list-style-type: none"> There was further study of the use of precision agriculture to better match chemical inputs, such as fertiliser, to spatial variability in potential yield and profitability in individual paddocks or across the whole farm. This allows growers to vary inputs in order to reduce costs and to protect the environment. A Soil Biology Initiative in South Australia, investigating disease suppression through practice change and minimal soil disturbance rather than through the use of chemical fungicides. The increase in disease suppression through practice change has provided complete control of the soil-borne diseases rhizoctonia and take-all in some trials. A project sought to identify ways that growers can adapt to and better manage the constraints posed by sodic-saline subsoils in the northern region. <p>Packages were developed for:</p> <ul style="list-style-type: none"> fungicide use and management approaches for controlling blackleg in canola, including an Australian blackleg management guide for canola growers <i>MaizeMan</i>, a decision-support tool for Australian maize growers variety-specific management of pulses. <p>Protocols were established for the management of chickpea diseases.</p>
<p><i>Industry 2</i> New and innovative product development:</p> <ul style="list-style-type: none"> identify premium markets to enhance grower returns ensure flow of market signals <p><i>RRDP 2</i> Improving competitiveness through a whole-of-industry approach</p>	<p>GRDC projects to improve the industry's competitiveness in new markets included:</p> <ul style="list-style-type: none"> studies of new pulse products, such as lupin concentrates for the aquaculture feeds sector a pulse ingredient initiative designed to increase the use of pulses in value-added products for export research to identify, through biotransformation, new crops, markets or products that would enable growers to switch from existing markets to new, potentially higher value grain product markets an aeration and cooling extension program, targeted at growers and smaller grain merchants, to educate growers in the practice of using aeration and cooling to manage grain quality and control insects in stored grain.

Priorities*	Relevant GRDC investments
<p><i>NRP 2</i> Promoting and maintaining good health</p> <p><i>RRDP 3</i> Maintaining and improving confidence in the integrity of Australian agricultural food, fish and forestry products</p>	<p>The GRDC continued to support the Australian Food Safety Centre of Excellence.</p> <p>A food safety risk assessment was conducted for the Australian grains industry. The study included the naturally occurring toxin deoxynivalenol, which is formed in wheat by a number of species of <i>Fusarium</i> and some other fungi that cause head blight.</p> <p>Other GRDC activities related to food safety included:</p> <ul style="list-style-type: none"> • assessment of strategies for the management of mycotoxins in maize • the Go Grains nutrition and education program • research into the quality management of barley in storage.
<p><i>Industry 3</i> Develop new alliances and links to market</p> <p><i>RRDP 4</i> Improved trade and market access</p>	<p>GRDC activities to foster market alliances included:</p> <ul style="list-style-type: none"> • work to improve understanding of wheat quality relative to the requirements of high-value markets and key overseas customers • support for Pulse Australia, the Australian Oilseeds Federation and the Maize Association of Australia, to ensure access to current market intelligence.
<p><i>Industry 4</i> Bringing biotechnology to bear on sustainability and consumer benefit outcomes, to support profitable farming systems and access to premium markets</p> <p><i>NRP 3</i> Frontier technologies for building and transforming Australian industries</p> <p><i>RRDP 5</i> Use of frontier technologies</p>	<p>GRDC support for the exploration of frontier technologies achieved practical results. For example:</p> <ul style="list-style-type: none"> • molecular markers for resistance to anthracnose and phomopsis were discovered and commenced being used in the narrow-leaf lupin–breeding program in Western Australia. • molecular research at Murdoch University in Western Australia demonstrated genetic pathways involved in the ability of some plants to detoxify herbicides. • Diversity Arrays Technology (DArT) was successfully developed for sorghum. • resistance gene–specific and quantitative markers of phosphine resistance in stored-grain pests were validated. <p>In collaboration with livestock R&D corporations, through the Premium Grains for Livestock Program, the GRDC also supported the development of objective grain quality–testing technologies for feed grains, such as an on-farm, near-infrared spectroscopy (NIR) moisture meter.</p>
<p><i>Industry 5</i> Genetic improvement and regional adaptation of new grain varieties:</p> <ul style="list-style-type: none"> • improved resistance to biotic and abiotic stress • quality standards for specific end uses 	<p>The GRDC’s strategic investments in breeding wheat, barley, oats and triticale are yielding new varieties with enhanced performance.</p> <p>This year also saw the release of:</p> <ul style="list-style-type: none"> • the new faba bean variety <i>Cairo</i>, which is specifically adapted for northern New South Wales and southern Queensland • two soybean varieties with large seed, superior tofu-making potential and higher yield • one albus lupin variety with improved pleiochaeta root rot resistance, and one narrow-leaf lupin with increased anthracnose resistance and herbicide tolerance.

Priorities*	Relevant GRDC investments
<p><i>Industry 6</i> Integrated pest management:</p> <ul style="list-style-type: none"> • to minimise total cost of pests, diseases and weeds • to maintain options and control strategies <p><i>NRP 4</i> Safeguarding Australia</p> <p><i>RRDP 6</i> Protecting Australia from invasive diseases and pests</p>	<p>A GRDC-supported project aimed at reducing the impact of diseases of pulse crops in Queensland, resulted in the publication of a reference for growers: <i>Chickpea Disorders—the Ute Guide</i>.</p> <p>A GRDC-supported project to develop alternative grain fumigants, led to the development of a mixture of ethyl formate and carbon dioxide known as Vapormate™, packaged in cylinders, which was recently registered in Australia. Ethyl formate is a naturally occurring compound found in a wide range of fruit, vegetables, cheese and grain products and will eventually be able to be used by growers as a fumigant for on-farm grain storage.</p> <p>Other GRDC projects on dealing with pests included:</p> <ul style="list-style-type: none"> • research identifying the management of weeds, stubble, rotations and soil nitrogen as the key to managing crown rot • the evaluation and development of biocontrol options for the organisms that cause annual ryegrass toxicity • a study of the population dynamics of the silverleaf whitefly—an emerging pest of grain legumes, sunflowers and peanuts in the northern region—in order to generate area-wide management strategies in central Queensland cropping systems • a program to determine what threat wheat streak mosaic virus poses to Australian wheat growers and under what conditions it may be expected to occur • the improvement of an existing weed risk assessment system for screening plant imports into Australia. The system was enhanced by translating its score-based outcomes into quantitative probabilities of weediness. This enhancement will enable a more quantitative approach to quarantine decision making, and is applicable to risk assessment for either insect pest or weed incursions.
<p><i>Industry 7</i> Effective and targeted transfer and adoption of technology and knowledge for Australian growers</p> <p><i>RRDP 7</i> Creating an innovative culture</p>	<p>A range of GRDC publications and services continue to be the key avenues for disseminating information that encourages the grains industry to accept R&D to build industry capacity.</p> <p>Innovations this financial year included:</p> <ul style="list-style-type: none"> • presentations by international speakers at the February 2005 Grains Research Updates, which transferred knowledge of overseas industry practices • the transfer of a number of Grains Research Updates (including all papers, interviews and presentations) onto a CD which was mailed to update attendees • the transfer of Harvest Radio programs onto CDs, for distribution to growers through Ground Cover under the <i>Driving Agronomy</i> strategy. The aim is to provide growers with a series of audio CDs full of agronomic advice that they can listen to either while driving or in the tractor. <p>Other activities included:</p> <ul style="list-style-type: none"> • assisting state agencies in the marketing and distribution of advice sheets, bulletins and industry

Priorities*	Relevant GRDC investments
	<p>guidelines</p> <ul style="list-style-type: none"> • publishing the 2005 <i>Guidelines for Spray Application</i> • publishing Agribusiness Crop Updates • hosting Grains Research Updates for advisers • producing newsletters for regional advisers • supporting a number of grains industry research scholarships for PhD students and postdoctoral fellows, and undergraduate scholarships • developing accredited courses on chickpeas and mung beans for growers and advisers.
<p><i>Industry 8</i> Independent variety evaluation</p>	<p>The GRDC-supported work to develop the National Variety Trials (NVT) was completed, and NVT began to be implemented for the pre- and post-release evaluation of potential new crop varieties.</p> <p>The GRDC also maintained its leading role in coordinating wheat quality research, by supporting the GRDC Wheat Quality Research Forum held in Melbourne in June this year as part of the larger 2005 AWB–GRDC Wheat Industry Forum.</p>

* Notes: 'Industry' priorities are the eight grains industry priorities identified through consultation.

'NRP' priorities are the Australian Government's four National Research Priorities.

'RRDP' priorities are the seven Ministerial Priorities for Rural R&D Corporations and Companies.

3. Projected 2006-07 Budget Analysis

3.1 Overview

Analysis of the 2006-07 budget is based on the GRDC's Revenue Projection Model. Some of the key parameters of the Model are forecasts of grains production and prices, exchange rates and the influence of GRDC's own forward commitments in order to maintain its future investment capacity. In this Stakeholder Report 2006-07, grains production and price figures for 2005-06 and 2006-07 are based on ABARE, AWB and currently available data from Profarmer, Australian Oilseeds Federation Crop Report and BIS Shrapnel. The Stakeholder Report 2006-07 focuses on the current year i.e. 2005-06 and the budget year 2006-07.

GRDC has looked at its Revenue Projection Model and made some modifications to improve its projection capacity. Wheat in the Model is now disaggregated into APH and APW. Similarly barley is disaggregated into malting and feed barley. GRDC currently validates such relevant information on wheat price and production from AWB, under a confidentiality agreement. In addition, the income projection of GRDC has been adjusted upwards by 10 percent so as to minimise any systematic projection bias of the incomes in 2005-06 and 2006-07. This adjustment is an estimation based on discussions with AWB and the other sources of data referred to above.

GRDC's reserves policy is to maintain its reserves at a level between 50 percent and 75 percent of the planned expenditure in the following year. However, the level of reserves has remained above the upper prudential limit for the past years. The major factors contributing to this have been:

- Grains gross value of production (GVP) has exceeded ABARE forecasts, on which GRDC financial forecasts have been historically based, and
- The weak Australian dollar contributed to higher than anticipated prices, until the Australian dollar appreciated during 2003. Since that appreciation, effective currency hedging by the marketers and bulk handlers has delayed the impact of a strong Australian dollar.

The GRDC Board has approved the maintenance of annual expenditure of \$128 million (in real dollars based on 2004-05), increasing by 3 percent per annum thereafter. This implies that annual expenditure will be \$135.5 million (dollars of the day) in 2006-07. The Board has adhered to this position for the following reasons:

- Over many years ABARE and other industry forecasts have consistently underestimated the growth and robustness of the grains industry. This has resulted in a history of excessively pessimistic reserve forecasts, consequent conservatism in expenditure, and failure to bring the reserves into the prudential range.
- There is 'up-side' potential, not only in terms of production, but also in terms of exchange rate and price.

Total expenditure in 2006-07 is projected to be \$135.5 million (dollars of the day). The baseline case assumes 'status quo' levy rates. GRDC's income projection in 2006-07 is based on latest ABARE, *Profarmer* and AWB's outlook on grain price and production in 2005-06 and 2006-07.

3.2 GRDC Income Forecast

GRDC's income forecast in 2005-06 and 2006-07 (**Baseline**) are based on the assumptions shown in **Table 2**.

Table 2: GRDC's Forecasted Income Assumptions - 2005-06 to 2006-07

	2005-06	2006-07
Wheat land area (m ha)	12.6	12.8
Wheat production (mt)	25.0	24.5
All grains production (mt)	43.5	41.8
Average price of wheat (APW) (\$/t FOB)	189	205*
Price of wheat (APH) (\$/t FOB)	227	226
Average price of malting barley (\$/t FOB)	203	195
Average price of feed barley (\$/t FOB)	180	171
Average price of canola (\$/t FOB)	353	345
Grains GVP (\$ billion)	8.8	8.7

Sources: "Australian Commodities", ABARE, March quarter 2006, "ProFarmer" NSW market updates between 9 December 2005 and 3 March 2006.

*Mid point of AWB's estimated range for 2006-07 APW (\$200 - \$210/tonne) as at 27 March 2006.

Based on AWB and ABARE forecasts, wheat production has been estimated to be 25mt in 2005-06 in the baseline. AWB's estimate of APW price in 2005-06 is \$189 per tonne¹, while the estimate of APH price in 2005-06 is \$227 per tonne. *ProFarmer*² has estimated that the prices of malting and feed barley will be about \$203 per tonne and \$180 per tonne respectively in 2005-06.

Table 3 shows the GRDC's projected income and expenditure budget for the periods 2005-06 and 2006-07, based on the assumptions in **Table 2 (Baseline)**. The projected GRDC income in 2006-07 is based on the 0.99 percent industry levy rate on all grains³, continuance of the prevailing Australian Government matching contribution and the baseline income scenario outlined in Section 3.2. At this stage, GRDC's income is projected to be \$119.2 million in 2006-07, a 3.1% increase over the provisional income of \$115.6 million in 2005-06, based on the assumptions in **Table 2**.

The break up of the GRDC's forecasted income (baseline) for 2006-07 is shown in **Figure 6**.

¹ AWB Media Release, 27 March 2006; ABARE Australian Commodities Report, March 2006

² "ProFarmer", NSW Market Updates between 9 December 2005 and 3 March 2006

³ Levy rate for maize is at 0.693 percent

Table 3: Indicative Income and Expenditure Budget 2005- 06 to 2006-07 (\$M)

	2005-06	2006-07
Levy*	63.3	67.3
Govt' Match*	41.9	43.7
Other**	10.4	8.2
Total Income	115.6	119.2
Commitments	96.5	96.9
New Research Investment	21.9	26.0
Employees	5.5	5.7
Suppliers	6.6	6.9
Total Expenditure	130.6	135.5
Surplus/Deficit	-14.9	-16.3
Gross Reserves ***	79.1	62.8
50% Lower Limit Reserves	67.8	69.8

* GRDC's levy income is matched by the Australian Government up to 0.5 percent of the gross value of grains production (3-year rolling average), provided the Government contribution does not exceed grower levies.

* 2005-06 estimates of levy income and Govt' Matching contributions include actuals from the first 8 months of that financial year.

**Other includes interest income from reserves, royalties, penalties and project refunds. Interest from the reserves forms the primary component of this 'Other Income'; it decreases as the value of the reserves decrease.

*** Gross reserve is total assets (including current and non-current assets) less total liability.

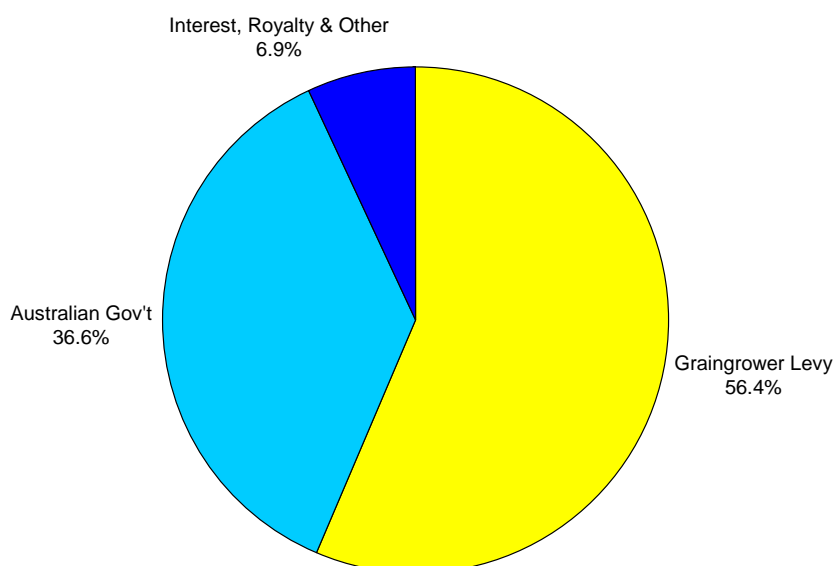


Figure 6: Break-up of the GRDC's Forecast Income for 2006-07 as a percent of Total Income

3.3 GRDC's Expenditure

The GRDC Board has approved the maintenance of annual expenditure of \$128 million (real dollars based on 2004-05). This implies that annual expenditure will be \$135.5 million in 2006-07. The percentage break-up of the GRDC's expenditure in 2006-07 is shown in Figure 7.

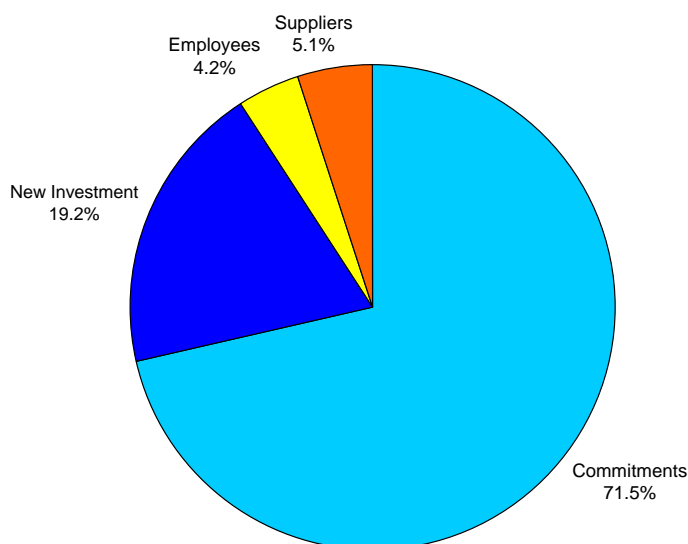


Figure 7: Break-up of the GRDC's Expenditure for 2006-07 as a percent of Total Expenditure

Out of the projected 2006-07 expenditure of \$135.5 million, it is estimated that \$26.0 million is for new research investment; \$96.9 million is for commitments, and \$12.6 million is for employee and supplier expenses.

New Research Investment

The 2006-07 budget allows for more than \$26 million in new research investment. New research investment in 2006-07 as a percentage of expenditure has increased to 19.2 percent from 16.8 percent in 2005-06.

In developing investment priorities for 2006-07, the regional panels consulted extensively with growers and researchers through regional advisory committees, linkage groups, tours, and site visits. Drafting of the priorities presented in the Investment Plan 2006-07 began in early 2005 and took into account new investments, progress reports of existing investments, project reviews and other inputs. Program teams identified gaps and opportunities, which fed into priority development for 2006-07.

The new research investment in 2006-07 is the next layer of investments, which will complement GRDC's current research portfolio with clearly defined 'gateways' and 'pathways to market' and help to achieve the vision of the GRDC.

New research investments in 2006-07 include:

- Defect elimination in wheat
- Wheat quality improvement
- Molecular marker assisted selection for crown rot resistance in durum
- Wheat quality for Asian markets
- Cytogenetics
- Exploiting Septoria and Stagonospora resistance in wheat
- Elimination of barley grain defects
- Lupin germplasm characterisation
- Interspecific hybridisation for lupins and chickpeas
- Pulse herbicide tolerance for the Western Region
- Vetch, Maize and Pearl lupin breeding
- NVT for pulses
- Double haploid production for pulses
- Biological control of mice by immunocontraception
- Risk assessment and preventive IWM (Integrated Weed Management) strategies for herbicide resistance in the diverse farming systems of the Northern Region
- Developing systems/management practices to enhance the impact of beneficial organisms in rotational farming systems of the Southern Region (scoping study)
- Application of novel genetic approaches to pest land snails (feasibility study)
- Extension/training component of the National Invertebrate Pest Initiative
- Diamond black moth control in the Western Region
- Delivering rapid soil tests to growers
- Integrated farming systems
- Stored grain pest resistance management initiative
- Food safety risk management initiative
- Managing post-harvest insect pests to facilitate market access for pulses
- Objective quality grain testing
- Biological inputs for profitable farming (BIPF)
- New baking process for Australian wheat in Asia
- Grain storage extension

Commitments

While the GRDC's budget for 2006-07 is \$135.5 million, 71.5 percent of this expenditure is required to maintain the GRDC's investment in its on-going R&D activities (shown in **Figure 7**). GRDC's commitments as a percentage of total expenditure declined in 2006-07 relative to the previous year.

Employee and Supplier Expenses⁴

Over the past five years, the GRDC's employee and supplier expenses have increased reflecting the growth of the Corporation's overall expenditure and a notable broadening of the Corporation's range of activities. However, with program investment increasing the Corporation has achieved significant economies of scale. Employee and supplier expenses in 2006-07 have been projected to increase by 4 percent over the figure in 2005-06, which implies that it has been held constant in real terms. Employee and suppliers' expense as a percentage of expenditure is projected to be 9.3 percent in 2006-07.

⁴ Employee expense is employee remuneration. Suppliers' expense is the cost of the supply of goods and services, which primarily includes program support.

3.4 Sensitivity Analysis

Sensitivity analysis was undertaken by varying key production and price variables in 2006-07. Gross reserves remain within the prudential limits in all scenarios in 2005-06. However in 2006-07, gross reserves fall below the lower prudential limit in both the baseline and pessimistic scenarios, and remain just \$2.1 million above the lower limit in the optimistic scenario. The 2006-07 estimates were made in late March 2006 after the ABARE Outlook Conference and after an AWB media release announced that new season pool estimates for the 2006/07 National Pool had risen by \$5 per tonne due to the Australian currency falling to 18-month lows. GRDC's reserves policy will be revisited so as maintain reserve limits that are optimal and reflect the current R&D investment needs in the grains industry.

If actual developments result in unacceptably low reserves then there are a number of responses and mixes of responses available to the Board other than curtailment of new investment, which include:

- recommend higher levies to the grains industry;
- seek and access other supplementary sources of revenue and/or leverage;
- withdraw from some existing commitments where the 'opportunity cost' of continuing becomes too high due to run down of reserves; and
- possibly borrow to cover existing commitments until the 'downside' factor(s) pass.

Table 4: Sensitivity Analysis

Sensitivity Results in 2006-07

	Units	Baseline*	Optimistic	Pessimistic
Projected Revenue	\$m	119.2	128.3	110.4
Expenditure	\$m	135.5	135.5	135.5
Surplus/Deficit	\$m	-16.3	-7.2	-25.1
Gross Reserve	\$m	62.8	71.9	54.0
Lower limit of reserves	\$m	69.8	69.8	69.8

Variables Changed in 2006-07

	Units	Baseline*	Optimistic	Pessimistic
Wheat Production	mt	25	27	21
Wheat (APW) Price	\$/t	205	210	200
Wheat (APH) Price	\$/t	226	231	220

*Baseline is as of 27 Mar 2006

Baseline

The baseline budget scenario outlined in Sections 3.2 and 3.3, assumes a 0.99 per cent levy on net farm value for 24 grains and a 0.693 per cent levy on net farm value for maize, and an expenditure of \$135.5 million in 2006-07⁵. The interest rate assumed in this analysis is the 10-year government bond rate as projected by BIS Shrapnel⁶.

The baseline shows that the projected revenue is \$115.6 million in 2005-06, which increases to \$119.2 million in 2006-07. The baseline also demonstrates that GRDC's gross reserves⁷ would remain within the upper and lower limits of the reserves policy in 2005-06. Gross reserves would decline to \$62.8 million in 2006-07, breaching the 50 percent lower limit of the reserves policy (**Figure 8**).

Table 4 shows the underlying assumptions and the results of the sensitivity analysis.

Optimistic

In the optimistic case wheat, barley and canola production in 2006-07 have been increased to 10 per cent above the ABARE production estimates used in the baseline scenario, with wheat production rising to 27mt. Price estimates for wheat, barley and canola are 5 per cent higher than in the base case to reflect a weaker Australian currency throughout 2006-07 translating into higher grain prices, as shown in **Table 4**.

The optimistic scenario shows that projected income in 2006-07 is \$128.3m. This is primarily due to higher production estimates of wheat and barley and the higher price estimates noted above. Gross reserves in the optimistic scenario would be within the upper and lower limits of the reserves policy in 2005-06 and fall to \$71.9m in 2006-07, which is still \$2.1 million above the lower prudential limit (**Figure 9**).

Pessimistic

In the pessimistic case wheat production in 2006-07 has been reduced to 21mt, as shown in **Table 4**. Wheat prices are projected to be at the bottom end of AWB's estimated price range for 2006-07, or \$200/t, to reflect the possibility that increased global production and carryover stocks will offset the positive impact of a declining Australian currency on grain prices.

The pessimistic scenario shows that the projected income in 2006-07 is \$110.4m. Gross reserves in the pessimistic scenario would be within the upper and lower limits in 2005-06 but fall to \$54.0m in 2006-07, breaching the lower prudential limit significantly (**Figure 10**).

4. The Levy Rate for 2006-07

The levy rate is determined on an annual basis alongside consideration of planned expenditure, anticipated income and the level of the reserves. Historically, a 1 per cent levy rate has provided the GRDC with a stable resource base and the ability to confidently maintain sustainable growth in investments. At Grains Week 2003, the GCA decided to effectively decrease the levy rate to 0.99 per cent for all grains (excluding maize) so as to accommodate the introduction of a 0.01 per cent PHA (Plant Health Australia) levy. This rate was applied from July 2003. A rate of 0.693 per cent was applied to maize from July 2003 for similar reasons.

⁵ A 3% compounding factor is assumed.

⁶ "Economic Outlook", BIS Shrapnel, February 2006

⁷ Gross reserve is total assets (including current and non-current assets) less total liability.

Currently, the levy rate is 0.99 percent of net farm value for 24 grains and at 0.693 per cent net farm value for maize. The GRDC's enabling legislation states that the levy is to be reviewed each year by the GCA.

A fluctuating levy rate may result in a more conservative and possibly limited approach to investment, subsequently reducing current benefits arising to grain growers. The stable levy rate and the GRDC's financial reserves have allowed the GRDC to safeguard the industry's research investment in a volatile environment.

The GRDC believes that value can be delivered to growers through a sustained expenditure level of \$135.5 million per annum in real terms. Indeed, the GRDC has provisionally identified potential investments to exceed this expenditure level. However, given current income and reserves forecasts the Board does not consider it prudent to increase expenditure in real terms. The sustainability of expenditure on a 0.99 percent levy rate is sensitive to grain prices, the exchange rate and drought. Moreover, the GRDC is facing a challenge in regard to entering long term commitments while maintaining discretionary expenditure for innovation over the next 2-year period (2006-08).

Bearing in mind the constraints, the downside risks, the ongoing industry challenges, the opportunities to deliver value to our customers (graingrowers) and the determination of the GRDC to innovate in new ways with the Five-Year Plan, the GRDC recommends a continuation of the levy rate at 0.99 percent for 2006-07, as reflected in the baseline case.

Baseline Case

Figure 8: Existing levy 0.99% and expenditure = \$135.5m in 2006-07. Wheat production = 25mt in 2005-06 and 24.5mt in 2006-07. Wheat (APW) price (FOB) = \$189/t in 2005-06 and \$205/t in 2006-07.

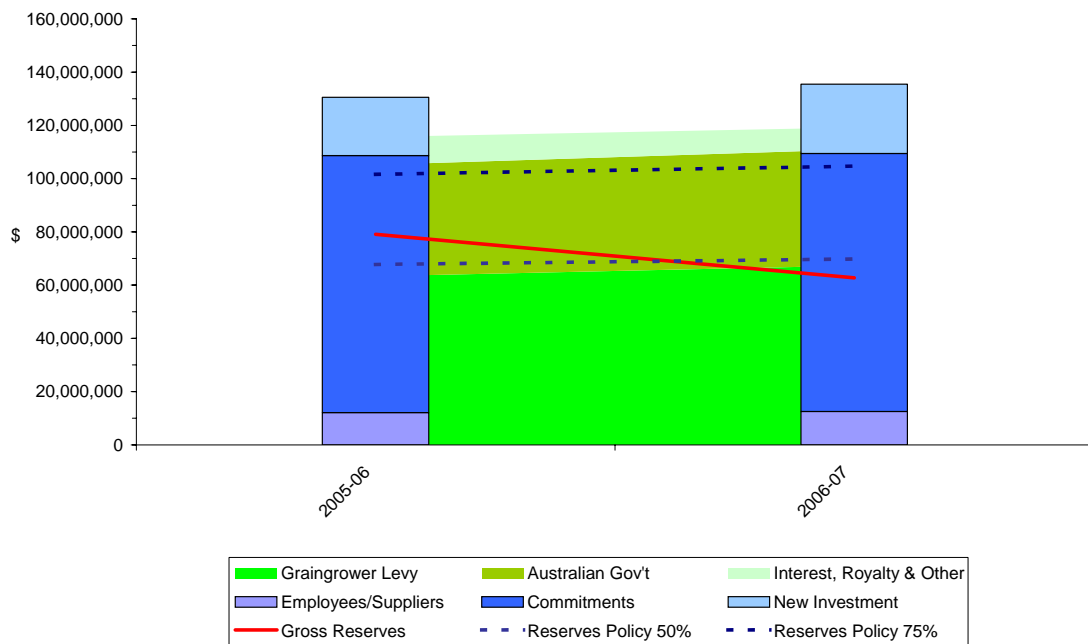


Table 5: Indicative Expenditure and Income Budget corresponding to Figure 8 (\$M)

	2005-06	2006-07
Levy*	63.3	67.3
Govt' Match*	41.9	43.7
Other**	10.4	8.2
Total Income	115.6	119.2
Commitments	96.5	96.9
New Research Investment	21.9	26.0
Employees	5.5	5.7
Suppliers	6.6	6.9
Total Expenditure	130.6	135.5
Surplus/Deficit	-14.9	-16.3
Gross Reserves ***	79.1	62.8
50% Lower Limit Reserves	67.8	69.8

* GRDC's levy income is matched by the Australian Government up to 0.5 percent of the gross value of grains production (3-year rolling average), provided the Government contribution does not exceed grower levies.

* 2005-06 estimates of levy income and Govt' Matching contributions include actuals from the first 8 months of that financial year.

**Other includes interest income from reserves, royalties, penalties and project refunds. Interest from the reserves forms the primary component of this 'Other Income'; it decreases as the value of the reserves decrease.

*** Gross reserve is total assets (including current and non-current assets) less total liability.

Optimistic Case

Figure 9: Existing levy 0.99% and expenditure = \$135.5m in 2006-07. Wheat production = 25mt in 2005-06 and 27mt in 2006-07. Wheat (APW) price (FOB) = \$189/t in 2005-06 and \$210/t in 2006-07.

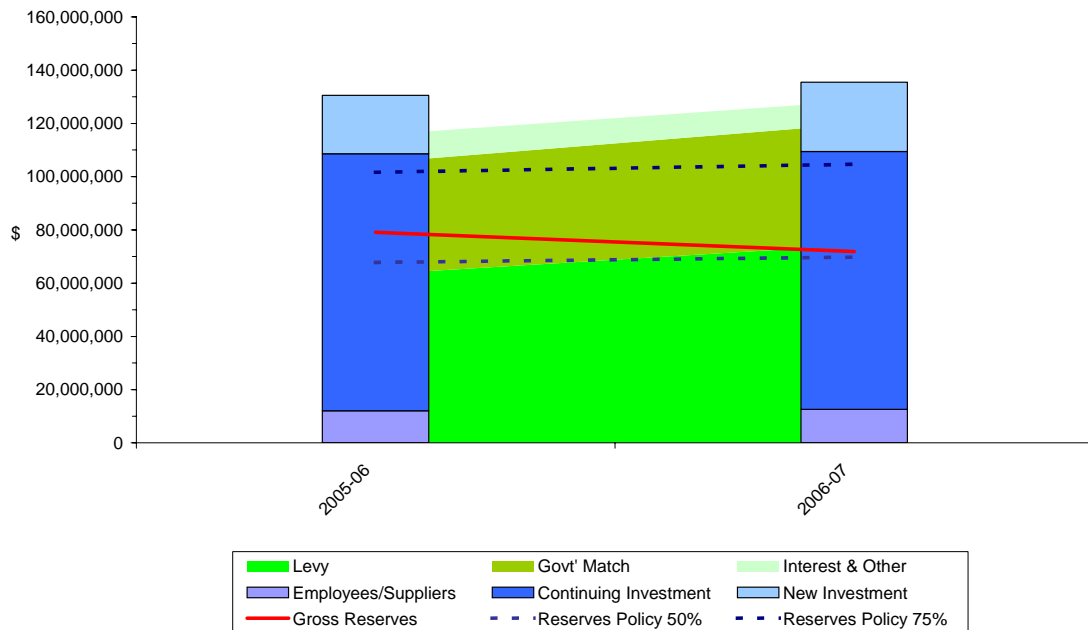


Table 6: Indicative Expenditure and Income Budget corresponding to Figure 9 (\$M)

	2005-06	2006-07
Levy*	63.3	74.3
Govt' Match*	41.9	45.3
Other**	10.4	8.6
Total Income	115.6	128.3
Commitments	96.5	96.9
New Research Investment	21.9	26.0
Employees	5.5	5.7
Suppliers	6.6	6.9
Total Expenditure	130.6	135.5
Surplus/Deficit	-14.9	-7.2
Gross Reserves ***	79.1	71.9
50% Lower Limit Reserves	67.8	69.8

* GRDC's levy income is matched by the Australian Government up to 0.5 percent of the gross value of grains production (3-year rolling average), provided the Government contribution does not exceed grower levies.

* 2005-06 estimates of levy income and Govt' Matching contributions include actuals from the first 8 months of that financial year.

**Other includes interest income from reserves, royalties, penalties and project refunds. Interest from the reserves forms the primary component of this 'Other Income'; it decreases as the value of the reserves decrease

*** Gross reserve is total assets (including current and non-current assets) less total liability.

Pessimistic Case

Figure 10: Existing levy 0.99% and expenditure = \$135.5m in 2006-07. Wheat production = 25mt in 2005-06 and 21mt in 2006-07. Wheat (APW) price (FOB) = \$189/t in 2005-06 and \$200/t in 2006-07.

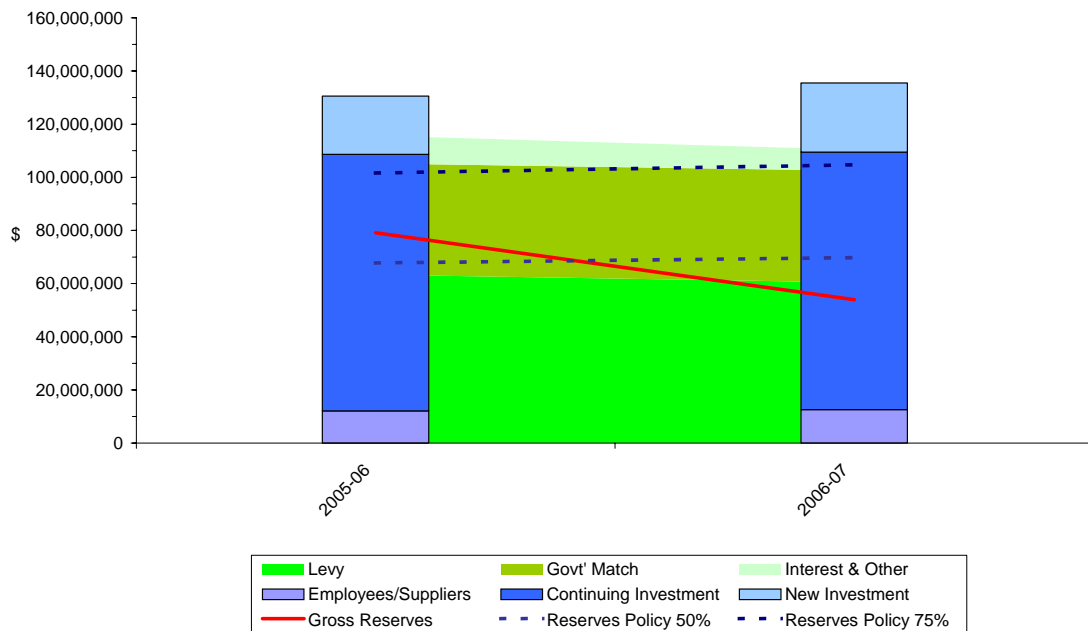


Table 7: Indicative Expenditure and Income Budget corresponding to Figure 10 (\$M)

	2005-06	2006-07
Levy*	63.3	60.5
Govt' Match*	41.9	42.0
Other**	10.4	7.9
Total Income	115.6	110.4
Commitments	96.5	96.9
New Research Investment	21.9	26.0
Employees	5.5	5.7
Suppliers	6.6	6.9
Total Expenditure	130.6	135.5
Surplus/Deficit	-14.9	-25.1
Gross Reserves ***	79.1	54.0
50% Lower Limit Reserves	67.8	69.8

* GRDC's levy income is matched by the Australian Government up to 0.5 percent of the gross value of grains production (3-year rolling average), provided the Government contribution does not exceed grower levies.

* 2005-06 estimates of levy income and Govt' Matching contributions include actuals from the first 8 months of that financial year.

**Other includes interest income from reserves, royalties, penalties and project refunds. Interest from the reserves forms the primary component of this 'Other Income'; it decreases as the value of the reserves decrease.

*** Gross reserve is total assets (including current and non-current assets) less total liability.