

# **Australian Government Productivity Commission**

*Government Investment into Research Development Corporations*

# **Submission**

**W.A. Grains Group (Inc)  
June 2010**

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## **Executive Summary**

The WA Grains Group (Inc) (WAGG) is a grower financed and grower driven group focused on delivering economic gain to growers.

WAGG does not support the GRDC in its current form and is committed to championing change within the GRDC.

The WAGG will illustrate in this submission that there are systematic failures from within the GRDC at a physical and financial level. WAGG will also illustrate that the GRDC is not returning a level of benefit to growers and taxpayers that supports its existence in its current form.

This submission contains twelve recommendations based upon research by WAGG into the operation of the GRDC.

Ultimately without significant change within the GRDC, the WAGG recommends the termination of the GRDC in favor of a Western Australian state model. This model is focused upon directly linking grower levies to on ground research at local and regional levels. Ultimately the sustainability of WA grain growers is about profitability.

## **1.0 Introduction**

The WA Grains Group (Inc) (WAGG) is a grower financed and grower driven group focused on delivering economic gain to growers.

The objects of WAGG are:

- i) To represent the Western Australian grain industry in the areas of production, marketing, plant breeding, agronomic development, storage and handling, processing, bio-security, transport and any other issues in order to promote, sustain and safe-guard the Western Australian grain industry in the longer term
- ii) To encourage profitable and sustainable production and marketing of the Western Australian grain crop.
- iii) To carry out, promote or assist in activities of any kind associated with the development, production, handling, processing, promotion and competitive services of Western Australian grain and its derivatives.

## **2.0 Terms of Reference for Submission**

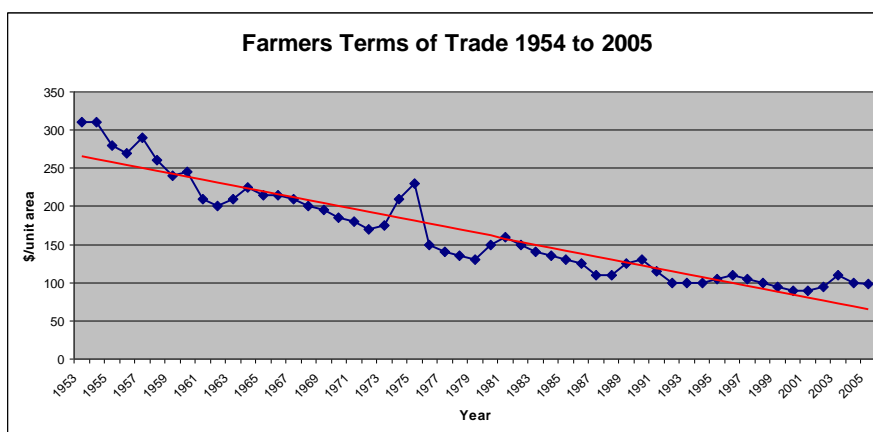
WAGG presents this submission to demonstrate an evidence based argument as to deficiencies within the Grains Research Development Corporation (GRDC), and to put forward an alternative model on how private industry and government can better partner for greater on ground outcomes in the grains industry.

### 3.0 Key Points

#### 3.1 Research is not keeping pace with the declining terms of trade

It has been clearly demonstrated in published literature that the terms of trade of the farming sector have been declining in the order of \$4/ha/year for the last fifty years (Refer figure 1). Hence in the order of \$200/ha has been eroded from the economic viability of the farming sector over that 50 plus years.

In the 20 years since the inception of GRDC this trend has not been arrested. Indeed the returns on the investments made by industry and taxpayers have not been substantial enough to command ongoing investment under the current model.

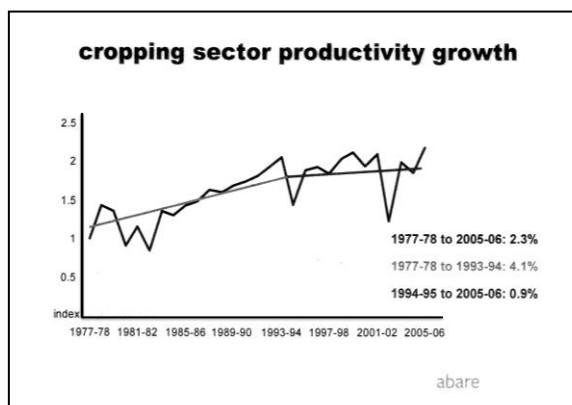


**Figure 1. Productivity Growth and the Returns from Public Investment in R&D in Australian Broadacre Agriculture**

**John Mullen.** President of the *Australian Agricultural and Resource Economics Society*, Principal Research Scientist, NSW DPI, Adjunct Professor, CSU and University of Sydney Presidential Address to the 51st Annual Conference of AARES, February 13 – 16, 2007, Queenstown, NZ

#### 3.2 Research is not delivering productivity

As the terms of trade of Australian growers is declining, productivity growth has slowed as evidenced by the Australian Bureau of Research Economics (ABARE). ABARE state that over the last ten years or so that cropping sector productivity growth has slowed to 0.9%.



**Figure 2. Cropping Sector Productivity Growth.** Cited from The National Research, Development & Extension Framework Australian Grains Sector Research, Development and Extension Strategy June 2009

This same time step is when the GRDC was installed to “to plan and invest in R&D for the Australian grains industry. Its primary objective is to support effective competition by Australian grain growers in global grain markets, through enhanced profitability and sustainability. Its primary business activity is the allocation and management of investment in grains R&D.” (Source : <http://www.grdc.com.au/director/about/aboutus>)

The declining terms of trade and the slowed crop productivity growth support the WAGG position that the GRDC is not delivering on the purpose for which it was created.

### 3.3 Grains Research Development Corporation (GRDC)

#### 3.3.1 GRDC Revenue

The Grains Research Development Corporation (GRDC) is an industry and Federal Government funded research organisation. The GRDC takes growers compulsory contributions to leverage “up to” an additional 40% Federal Government contribution to grains research. In 2008/09 the Federal Government contributed 27% of GRDC’s revenue (68% by growers); in 2007/08 the Federal contribution was 30% (60% by growers).

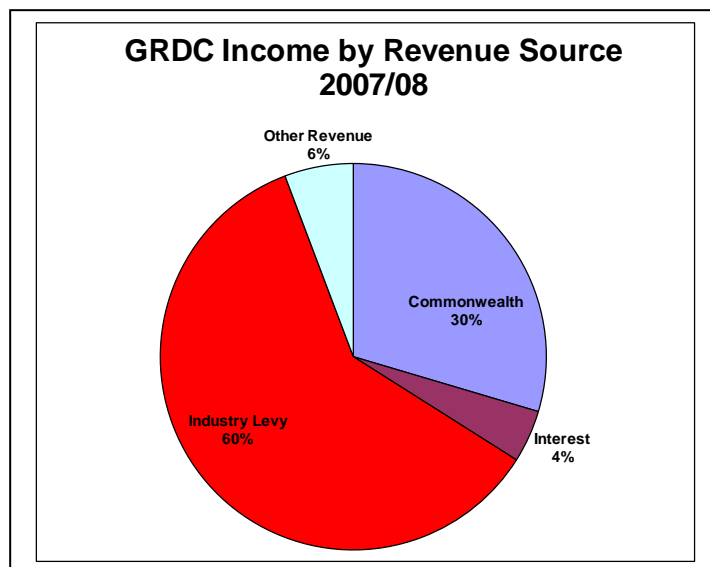


Figure 3. GRDC Income by Revenue Source.  
GRDC Annual Report 2008/09 pp140

#### 3.3.2 GRDC Grower Contribution

The GRDC received 83% of its grower income from wheat and coarse grains in 2008/09. Of the 83% of income directly from grains, the commodity wheat contributed 58% of this income in 2008/09 and 52% in 2007/08. Please note that WAGG are only able to demonstrate data over two years due to the fact that the GRDC financials have only been made more transparent to growers in the last two years.

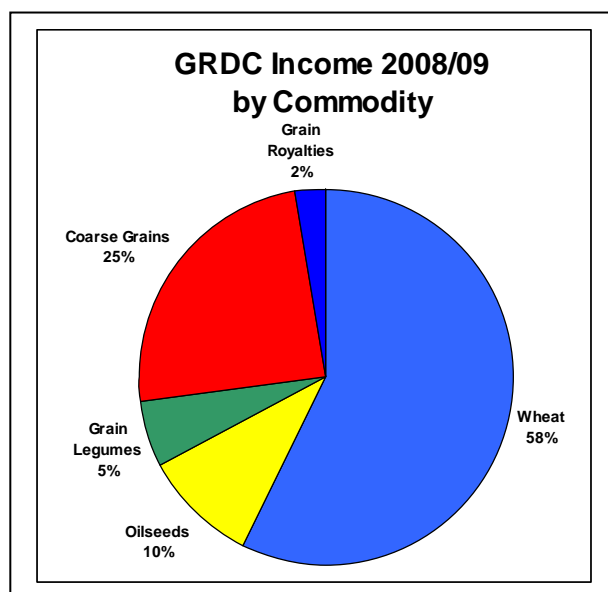


Figure 4. GRDC Income by Commodity. GRDC Annual Report 2008/09 p140

### 3.3.3 GRDC Investment by Program (Commodity)

GRDC received 58% of its grower funded income from wheat in 2008/09. However GRDC only applied 7% of its total funds to wheat specific projects in 2008/09. GRDC cites “cross commodity” research objectives as to where the majority of the program dollars are spent.

In 2007/08 the amount of funds committed to wheat specific projects was 13% and cross commodity research was 63%.

It would appear that in the second year of increased transparency that just 50% of the funds allocated to the grain that produces the “lions share” of GRDC’s grower income (wheat) was transferred from wheat specific projects to “cross commodity” projects.

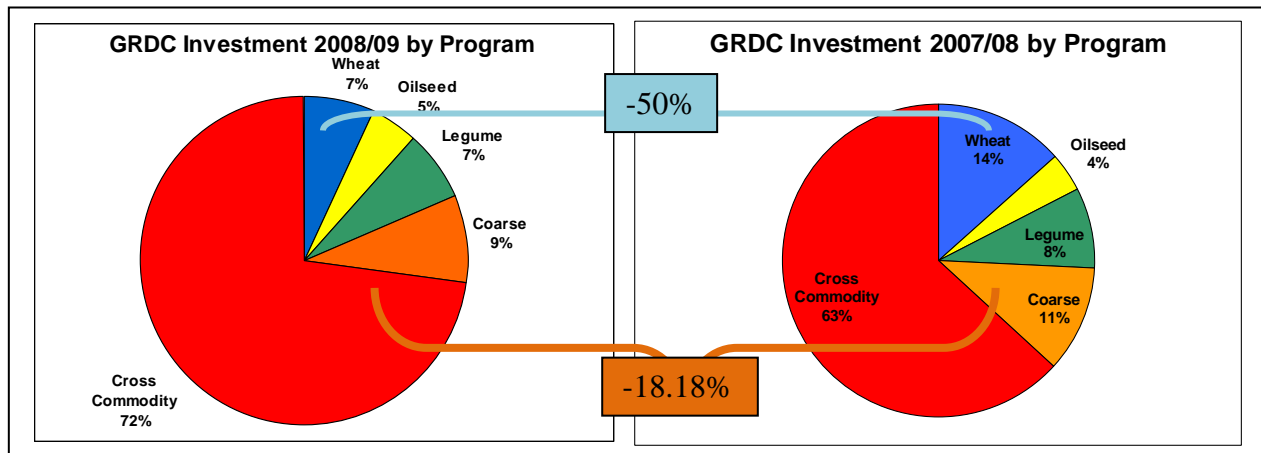


Figure 5. GRDC Investment by program. GRDC Annual Report 2008/09 p140

### 3.3.4 GRDC Cross Commodity Research and the “Free Testing” for Private Organisations is Questionable.

Cross commodity research appears to have had a very wide interpretation by GRDC. One such example is cited from the GRDC Growers Report 2008/09 Page 24 where the report states;

*“Two new potential foliar fungal products from overseas are being evaluated in Australia against our conditions and pathogens. Both are new actives and look to have potential against a range of diseases such as rust and mildew.”*

The questions that grain growers would ask are:-

- Why is GRDC using grower and taxpayer funds to “prove up” private overseas companies products for use in Australia?
- Should growers and taxpayers be funding research into private overseas company’s products especially in light of the fact that we (growers) will have no control over the price, or supply of the end product into Australia?
- Is it appropriate for private companies to use the GRDC’s research capabilities as an “independent” evaluator of products free of charge when a fee for service model seems more appropriate?

In our research the GRDC has no reported income in the 2008/09 Annual Report for privately funded work being undertaken by the GRDC as a vehicle for “independent evaluation”.

We can take this argument one step further with the “core” research of GRDC and the national variety testing (NVT) program. The question should be asked as to what remuneration growers and taxpayers receive from companies testing varieties under the NVT system? Shouldn’t private companies (even those with government partners such as Intergrain (Department of Agriculture and Food Western Australia (DAFWA) and GRDC) pay to have their varieties independently tested via the GRDC system? If these “companies” are going to gain commercial benefit from industry and publically funded research it would not be unreasonable to consider that “they” should contribute financially to the independent research.

In a sign of the times there has been a raft of relatively “unproven” varieties being released by a range of companies in recent years. All of these varieties are commanding significant end point royalties with the growers taking much of the risk in using the variety in their bulk programs. Growers are continually told to access the relevant information for new varieties through the NVT website. The authors acknowledge that this website continues to improve however the NVT website remains mistake ridden, and assumes a reasonable level of computer skills of the landowner to access the information and manipulate the data to seek the best level of local results.

The Australian Bureau of Statistics in 2006 (Agriculture in Focus: Farming Families, Australia, 2006. Issued 12/08/2008) cites the average age of farmers to be 52 years. However the GRDC does not appear to have appropriate training available to growers to improve their skill sets to access relevant information critical to their business. Remembering that if you are around 40 years of age then you probably started your computer skills with a dual floppy drive disk operating system (DOS) based computer. If you are older than 40 working on the farm, unless you have made reasonable effort your computer skills are probably poor to OK. If you are 50 – 60 years of age your skills are probably limited and certainly you are probably not likely to be fluent with the use of spreadsheets and data manipulation. Hence the recurrent answer of “*it’s on the website*” with no clear extension and training program for growers to gain the best use of the information and to avoid incorrect interpretation of results is unsound.

The NVT internet porthole is the method by which growers can access the NVT work. However the NVT system is frequently lacking in information. For example the new Australian Grain Technologies (AGT) wheat variety Mace has no variety measurement data i.e. there is no data for any of the 15 disease ratings, there is no information on growth or size of the variety (usually 4 parameters) and there is no physiological information i.e. sprouting tolerance. In another example is the barley variety Roe, the variety is listed as a malt type of barley when indeed it is only a feed type.

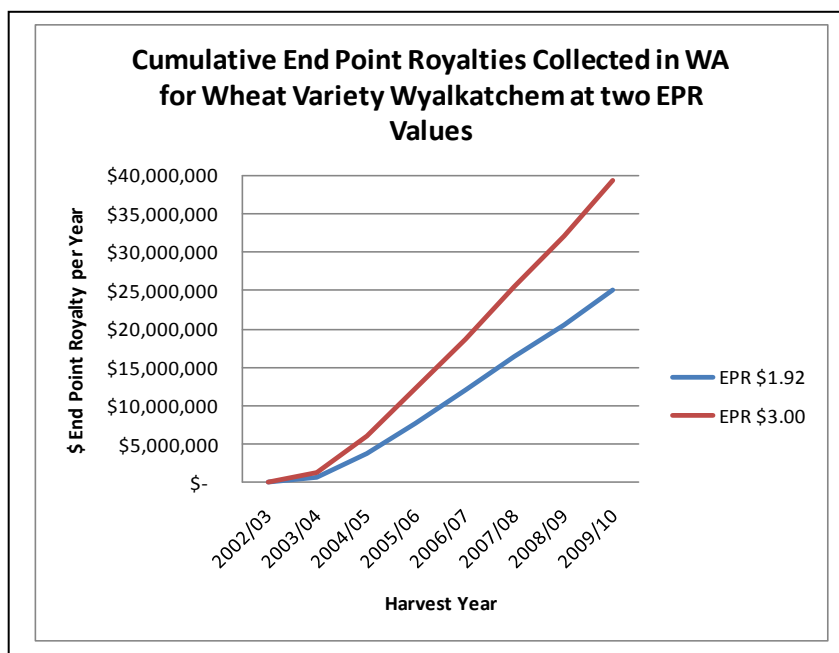
Successful grain varieties can produce significant commercial dollars for the seed companies, and yet the growers and taxpayers continue to support their development financially, with no direct reward for their success. In the case of the Western Australian wheat variety Wyalkatchem (Department of Agriculture and Food Western Australia with funding from GRDC now, owned by Intergrain a DAFWA and GRDC) represented 32.73% of wheat deliveries in WA in 2009. The end point royalty on this variety is currently \$1.92 per tonne (in WA). The WA 5 year wheat average is 7.364M tonnes (Source:-GIWA). Hence in the order of \$4,627,655 was generated in end point royalties in 2009 and returned to Intergrain from WA alone. By way of context the income in EPR for the wheat variety Wyalkatchem to Intergrain in 2009 was 260% higher than the \$1.78M GRDC invested into wheat specific programs in WA in the same year.

If a new variety is to be assessed through the NVT system what costs are paid by the commercial company to have their variety evaluated at a state and national level? The GRDC financial statements would suggest that it does not cost independent companies anything to have their varieties assessed in the NVT system despite that fact that the end point royalties for new varieties are around \$3.00 to \$3.50/tonne.

Hence growers are paying four times for access to new varieties and technologies:-

- 1/ Pre breeding (Part funding by GRDC)
- 2/ National Variety Testing (NVT) Evaluation
- 3/ Plant Breeders Rights (PBR) (seed purchase)
- 4/ End point Royalty (EPR) (paid on delivery of the grain to an end user or grain marketer)

End point royalties alone can raise substantial revenues. In Western Australia the highest delivered variety into the Co-operative Bulk Handling system is the wheat variety Wyalkatchem. The percentage of Wyalkatchem delivered to CBH as published by the Department of Agriculture and Food Western Australia (DAFWA) over the years since release (2001), has yielded DAFWA (now Intergrain) in the order of \$25M in EPR.



The point here is that growers and taxpayers are funding every step of the development of a new variety and growers continue to pay through the purchase of PBR seed (initially – and then sometime free to trade) and then through EPR.

Additionally EPR's change without any consultation or negotiation with growers and in fact the EPR for Wyalkatchem increased from \$1.12 to \$1.92 and the growers had no choice but to accept the increase.

Figure 6. Cumulative end point royalties collected in WA for wheat variety Wyalkatchem at two EPR Values.

Any company can use the NVT system at no cost, however as this variety demonstrates there are potentially large rewards to the company if the variety is successful. Notably EPR's are now in the order of \$3 - \$3.50/tonne. Hence a successful variety such as Wyalkatchem at conservatively \$3/tonne EPR has the potential to raise \$40M over 8 years.

### 3.3.5 GRDC & EPR Affect on Growers – Case Study

The objection that WAGG has to the GRDC levy and EPR is that when growers are making a loss, the GRDC and the seed companies (through EPR) are leveraging money off grower's equity. In figures 7 and 8 we are depicting a real case study of a property in the <325mm average annual rainfall wheatbelt of WA. The farm is located in the second largest production shire in terms of Gross Value of Agricultural Production (GVAP) in WA (25<sup>th</sup> largest GVAP shire in Australia).



The case study graphs over a six year period for both wheat and barley the operating profit (before interest and tax (BIT)) against the GRDC levy.

It is clearly evidenced in figures 9 and 10 that for wheat that the value of the GRDC levy and the EPR represents 26% of the operating profit of the business. In 50% of the years graphed, the GRDC and EPR was more than 100% of the profit.

The GRDC levy is perceived as a tax on production and not profitability. If a farm makes a loss it still has to pay the GRDC levy and the EPR. Effectively the farm has to mortgage its assets, to pay the compulsory levy and EPR.

WAGG believes that growers should not have to borrow against equity to pay for research, development and extension. Potentially growers have to borrow money at 7 – 10% to get a return on investment is only 0.9%.

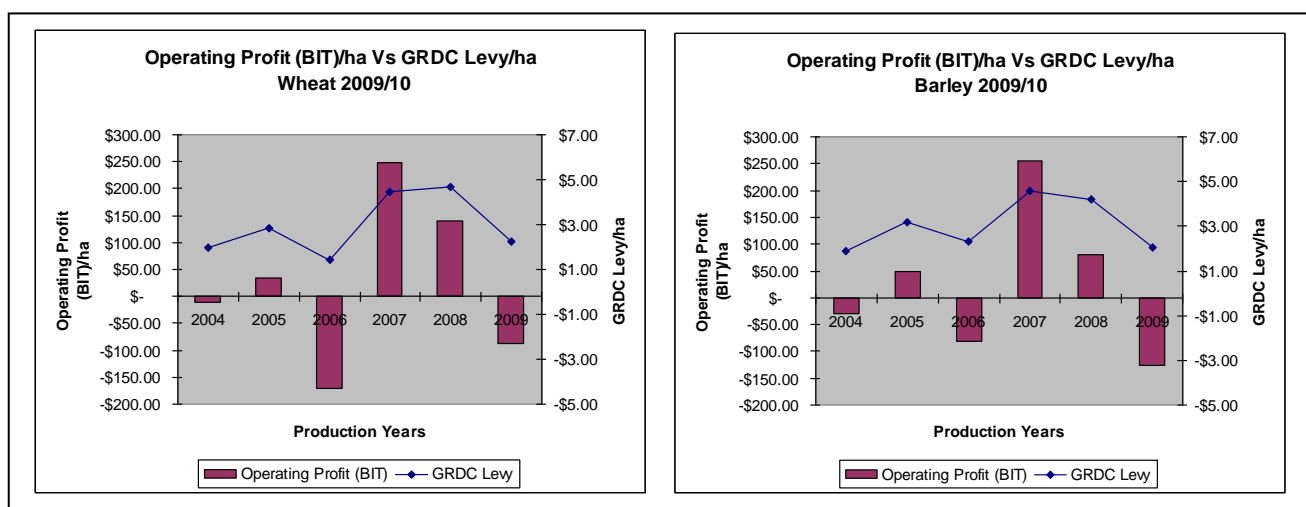


Figure 7 and 8 :- Case Study operating profit before interest and tax compared against the amount of GRDC Levy paid per hectare for that property in that year for wheat and barley

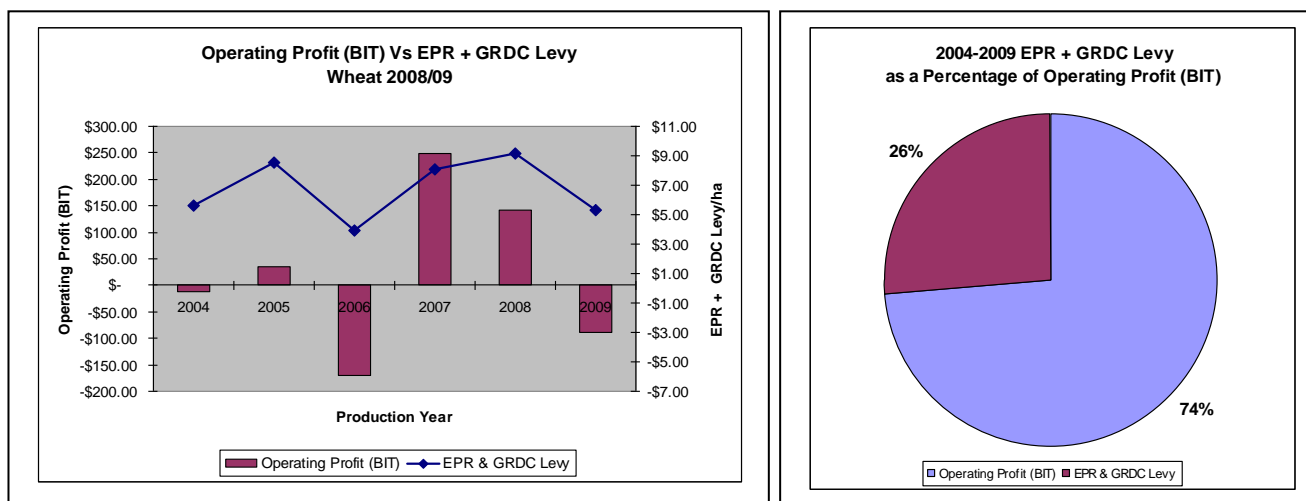


Figure 9 :- Case Study; Operating profit before interest and tax compared against the amount of GRDC Levy and the end point royalty (EPR) paid per hectare for that property in that year for wheat.

Figure 10 :- Case Study; 2004 – 2009 end point royalty (EPR) and GRDC Levy as a percentage of operating profit

Aside from the case study, WA's largest grower Mr John Nicoletti stated in GRDC's Groundcover magazine

***“I am not a political person, but at \$280/t you cannot grow wheat at a profit in this climate and growers need to make that statement loud and clear” John Nicoletti “Groundcover” Jan/Feb 2009 pp35***

In the time since that article was written, wheat values have fallen to \$200 - \$210/tonne.

The GRDC continue to take a levy to increase productivity without increasing grower profitability, and in fact they are achieving neither.

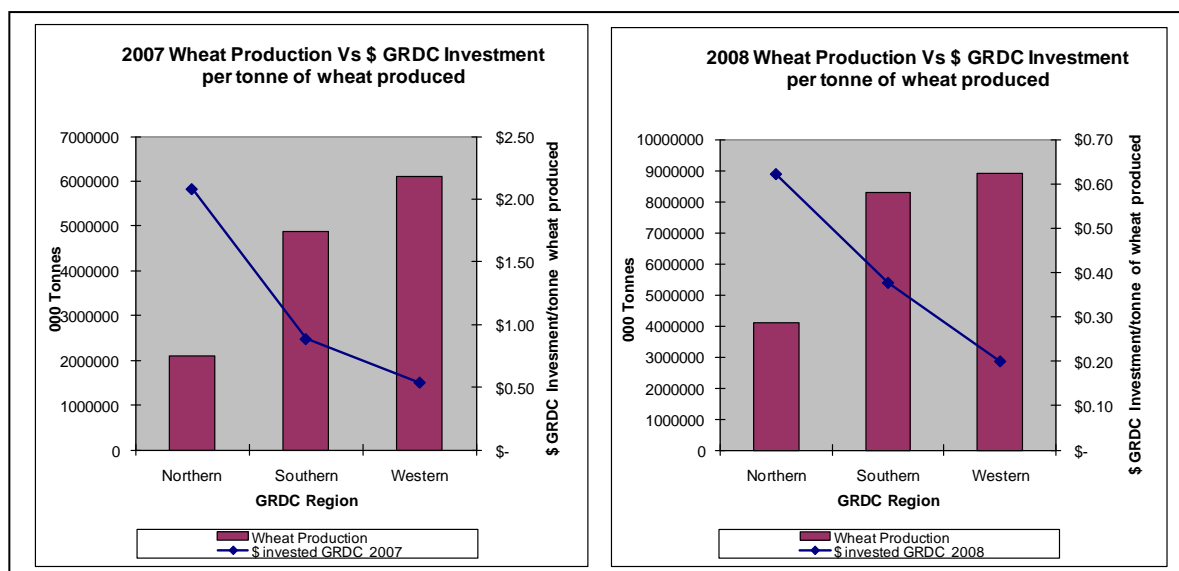
### 3.3.6 GRDC Investment into Regions Inequitable.

Figures 11 and 12 demonstrate clearly that in a region by commodity analysis, that the regions who produce the income do not gain anywhere near proportional investment back into the commodity that generated the income.

In fact, in the case of wheat, the greater the production and therefore the greater the income generated for GRDC via the compulsory levy, the less direct investment back into that commodity.

Clearly over the two years where growers have been able to track their investment in GRDC through greater transparency, the clearer it is that for wheat in particular that the Western Region (Western Australia) is substantially disadvantaged in attracting direct GRDC funds into wheat based programs. In contrast the Northern Region (Queensland and northern NSW) receive exponentially more funds compared to income generated from that region.

For instance in 2008/09 GRDC invested \$0.62 per tonne of wheat produced in the Northern Region, \$0.38 per tonne in the Southern Region and just \$0.20/tonne in the Western Region. It is hard to see value for money being returned into the Western Region.



Figures 11 and 12:- GRDC investment expressed as dollars investment per tonne of grain produced per GRDC region for wheat for the years 2007 and 2008

Figure 13 demonstrates for barley the same trends that were depicted for wheat with regards to GRDC investment in coarse grains. In this case we have graphed GRDC region barley production against the dollars of GRDC investment per tonne of production in coarse grains. Both the southern and western regions will again marvel at the northern regions ability to leverage GRDC funds

without necessarily providing the production base by which to justify the level of investment. Effectively this is providing cross subsidisation of grains research across Australia funded by WA.

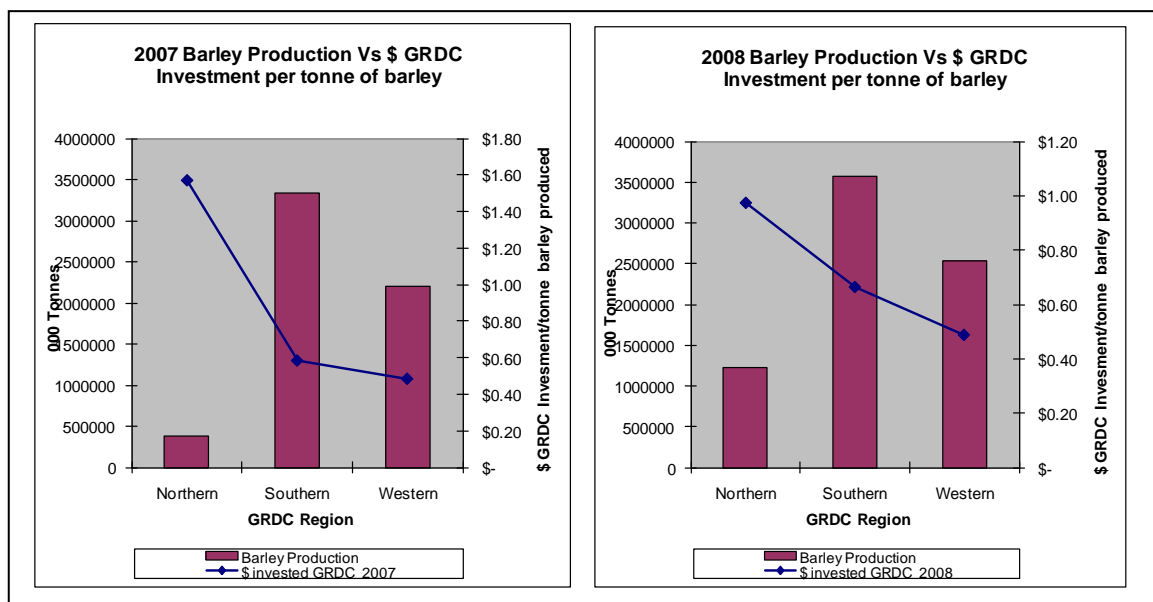


Figure 13. GRDC investment expressed as dollars investment per tonne of grain produced per GRDC region for barley.

### 3.3.7 GRDC Program Inequity across Regions.

Time and time again GRDC demonstrates that its actions do not mirror the words that they are using. Continuously growers are being told that GRDC is a “national” body and as such that all regions are treated the same. Below are two examples where this is clearly not the case. Figure 14 is from the “Healthy Soils” program. In GRDC’s own publication “Groundcover” the project clearly demonstrates a Northern region bias, with both Southern and Western regions receiving very little of the “hands on approach to soil management”.

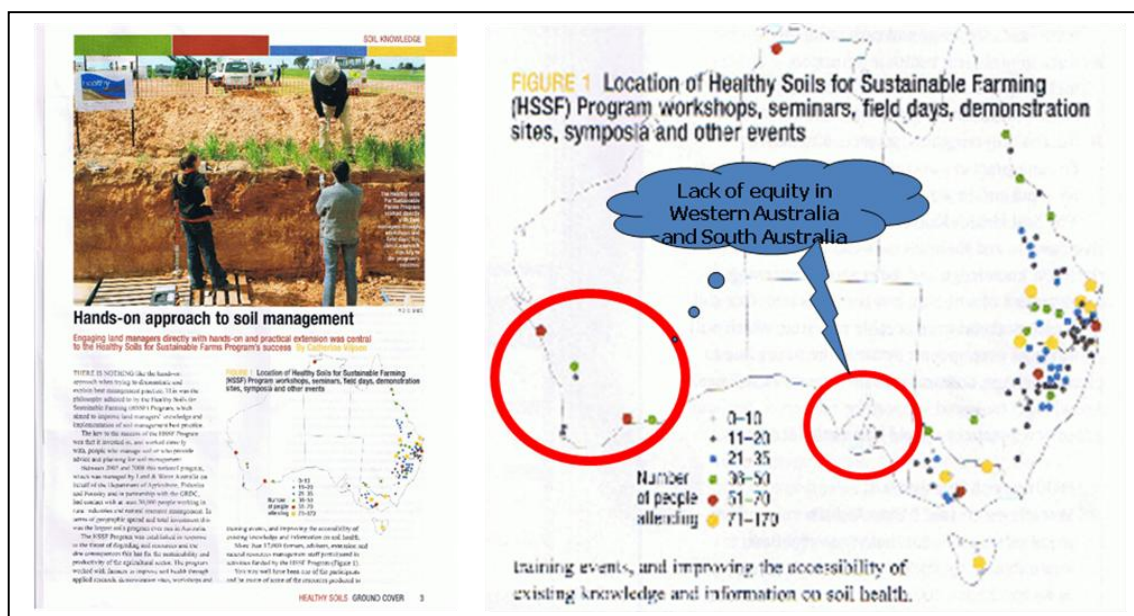


Figure 14. GRDC article in the “Healthy Soils” Groundcover Issue.

Similarly in our second example (Figure 15), as late as the 18<sup>th</sup> March 2010, GRDC paid for a large advertisement in the Farm Weekly (commercial rural newspaper) in Western Australia proudly announcing that the season 2010 was in full swing.

Of the 21 events listed in the newspaper feature none were in Western Australia, one was in South Australia and 20 were in Queensland, New South Wales and Victoria. The advertisement clearly says that GRDC is “Investing your levy to drive your farm productivity and profitability”. This again demonstrates the inequity between levy payers.

**38 FARM WEEKLY ■ March 18, 2010**

**Season 2010 in full-swing for GRDC**

We're doing the groundwork by listening to growers and identifying industry issues and investment priorities

We're sowing the seeds for investment in the industry's future

We're fertilising growers' knowledge and helping to boost productivity through support of local, regional, state and national activities

**Attend an event near you...**

DATE	EVENT	LOCATION	DATE	EVENT	LOCATION
March 18	Integrated Weed Management grower's workshop	Dalby, QLD and Nhill, VIC	March 31	Principles of profitable farm leasing workshop	Orange Ex-Services Club, Orange, NSW
March 18	SPAA variable rate workshop	London, SA	April 1	Principles of profitable farm leasing workshop	Dubbo RSL Club, Dubbo, NSW
March 19	Integrated Weed Management grower's workshop	Horsham, VIC	April 6-8	Better soil management	Adelaide, SA
March 19	SPAA variable rate workshop	Victorian Mallee, Mildura VIC	April 7	Principles of profitable farm leasing for grain producers	Grains Innovation Park, Horsham, Victoria
March 22	SPAA variable rate workshops	Wimmera, Warracknabeal VIC and Sea Lake, VIC	April 8	Principles of profitable farm leasing for grain producers	Ouyen United Football & Netball Club, Ouyen
March 22	Integrated Weed Management grower's workshop	Eugowra, NSW	April 14	MPB CRC workshop with BCG Women's Agronomy Group	73 Cumming Avenue, Birchip, Victoria
March 23	Integrated Weed Management grower's workshop	West Wyalong, NSW	May 1-4	International Pulse Industry Convention	Sofitel Hotel Brisbane, QLD
March 23-25	Better Soil Management	Toowoomba, QLD and Dubbo, NSW	June 10	Women's Agronomy Group workshop	73 Cumming Avenue, Birchip, VIC
March 24	Integrated Weed Management grower's workshop	Ex-Services Club, Griffith, NSW	June 21-24	Australian Summer Grains Conference 2010	Gold Coast, QLD
March 25	Integrated Weed Management grower's workshop	RSL, Deniliquin, NSW	June 30	BCG Expo Dinner	Birchip Leisure Centre, Birchip, VIC
March 30	Principles of profitable farm leasing workshop	Cowra Services Club, Cowra, NSW			

For location and/or venue details, visit [www.grdc.com.au/diarydates](http://www.grdc.com.au/diarydates)  
**Investing your levy to drive your farm productivity and profitability**  
 Find out more at [www.grdc.com.au](http://www.grdc.com.au) or contact (02) 6166 4500

Figure 15. Farm Weekly advertisement of 18<sup>th</sup> March 2010 demonstrating that none of the events being hosted by the GRDC were held in Western Australia.

### 3.3.8 GRDC Research Duplication

In the GRDC Strategic Research and Development Plan 2007-12 the charter of the GRDC is “To increase the effectiveness and efficiency of Australia’s rural R&D investment, by eliminating duplication and fragmentation on cross-industry issues, the GRDC will continue to collaborate with other RDCs through a range of co-investment, coordination and communication activities”.

Figure 16 depicts the pages of two documents. The first page is from the publication Australian Grain, the southern focus section of the January-February 2010 magazine. In the article a newly formed (and GRDC funded) grower group known as the Grain Orana Alliance (GOA) in the central west of New South Wales has received funding for “ground truthing research” and is based on the Northern Grower Alliance (NGA) that operates in QLD and Northern NSW (Northern Region of GRDC).



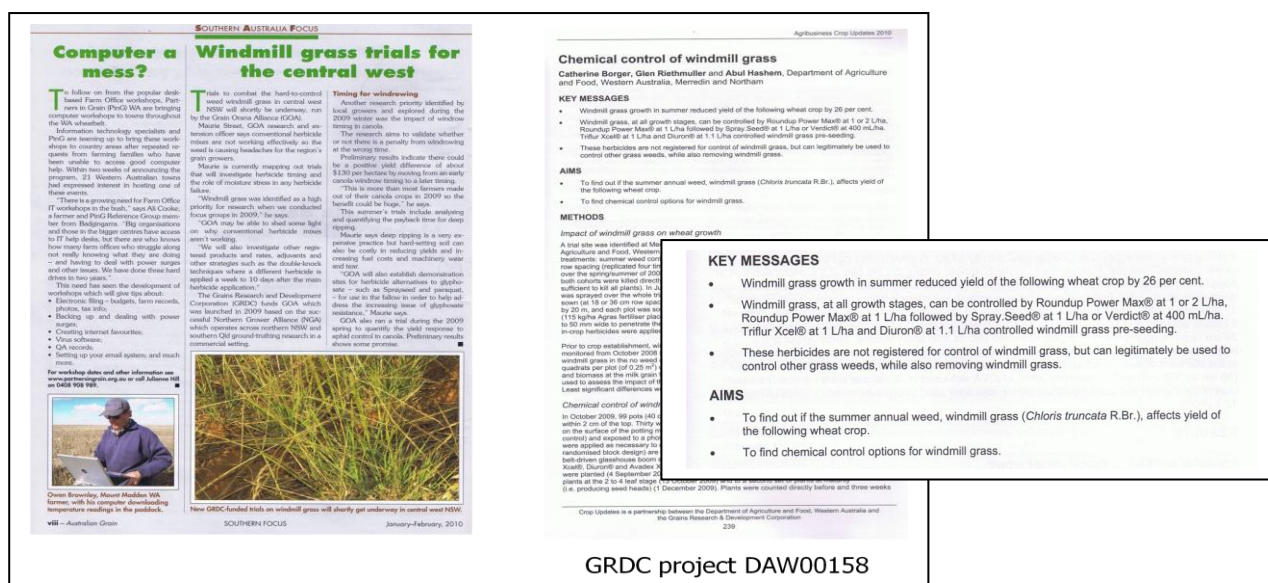


Figure 16. Australian Grain magazine pp viii of the Southern Focus section of January – February 2010 and the Agribusiness Crop Updates 2010 pp229 with a highlight box of the key messages and aims of the GRDC project DAW00158.

The research highlighted in the heading of the Australian Grain article is about a problem grass weed in cropping land known as windmill grass. At the same time the Australian Grain article was published, the Department of Agriculture and Food in WA through the GRDC partnership project of the WA Agribusiness Crop Updates of 2010 published and presented the research findings on “Chemical control of windmill grass” a GRDC funded project Number DAW00158. The aims of the project were to :-

1/ To find out if the summer annual weed, windmill grass (*Chloris truncata* R.Br.) affects yield of the following wheat crop.

2/ To find chemical control options for windmill grass.

It would appear that there is a clear duplication between the research work planned by the GOA and the published work of the Department of Agriculture and Food, both funded by the GRDC.

In the same Australian Grain Article the GOA stated that it would also be undertaking research work on the following:-

- Timing of windrowing canola and the effect on harvest losses
- Payback period for deep ripping
- Yield response to aphid control in canola.

A second case study of duplication from the article about the activities of GOA can be made from the research aim of the group to identify the “Payback period for deep ripping”. The GRDC in its 6 page factsheet publication entitled Deep Ripping published in 2009 includes a table of the economics of deep ripping which has been reproduced below in figure 17.

The fact sheet cites that this table has been taken from a publication titled “Identifying, understanding and managing hostile subsoils for cropping – A reference manual for neutral-alkaline soils of south-eastern Australia” which was published by “The Profitable Soils Group (January 2009) and the work was at least partially funded by the GRDC whose logo appears on the cover of the document.

TABLE 2 THE ECONOMICS OF DEEP RIPPING						
Yield (t/ha)	Price (\$/tonne)					
	100	150	200	250	300	350
0.5	50	75	100	125	150	175
1	100	150	200	250	300	350
1.5	150	225	300	375	450	525
2	200	300	400	500	600	700
2.5	250	375	500	625	750	875
3	300	450	600	750	900	1050
3.5	350	525	700	875	1050	1225
4	400	600	800	1000	1200	1400
4.5	450	675	900	1125	1350	1575

An example of the impact of changes in price and yield to achieve payback from deep ripping in the first year if the total cost of production including deep ripping is \$205/ha.

SOURCE: Identifying, understanding and managing hostile subsoils for cropping  
 - A reference manual for neutral-alkaline soils of south-eastern Australia.

Figure 17. The economics of deep ripping as is displayed on the GRDC factsheet Deep Ripping published in 2009

Not only has GRDC funded the initial work, it has reproduced and condensed at least part of the work into a factsheet, and is now refunding the work by GOA to identify the payback period of deep ripping. This is clearly demonstrating a blatant duplication of research.

The fact is that none of the final reports on GRDC projects are available to the industry or taxpayers via the GRDC website to allow stakeholders, partners or individuals to further develop and create innovation in the grains industry because there is no mechanism to conduct “literature reviews” of GRDC funded work.

By the same token how can the GRDC aim to *“To increase the effectiveness and efficiency of Australia’s rural R&D investment, by eliminating duplication and fragmentation...”* if the work being undertaken cannot be scrutinised and evaluated.

### 3.3.9 GRDC Erosion of grower levy in research delivery chain

Grain growers in Western Australia are not satisfied with the performance of GRDC particularly when they are under enormous financial pressure. When the GRDC gets paid even though growers are producing negative returns then the levy and in particular the “bang for the buck” comes under intense scrutiny. Figure 18 depicts the type of press that is being generated from the dissatisfaction of growers on the performance of GRDC, and in particular the payment of the levy regardless of the performance of GRDC and indeed the financial performance of the industry.

Not only does WA produce the most wheat, it also generates significantly more income for the GRDC through its grain production in particular wheat and coarse grains combined that the other GRDC regions. And yet a greatly reduced research dollar is returned to WA as previously evidenced in section 3.3.6 above.



Figure 18. Two examples of rural press from January and February 2010 from Western Australia on GRDC levies.

The levies are being paid, but distribution back to the regions that generate the levy is inequitable, as is the “losses” in the system before the industry funded dollars reach the ground.

Figure 19 contains an excerpt from the GRDC grower report 2008/09. In the table on the left of the figure is the GRDC financial overview. The estimated gross value of agricultural production was cited as \$11,154M (ABARE estimate). The GRDC levies collected from this production were \$89.2M.

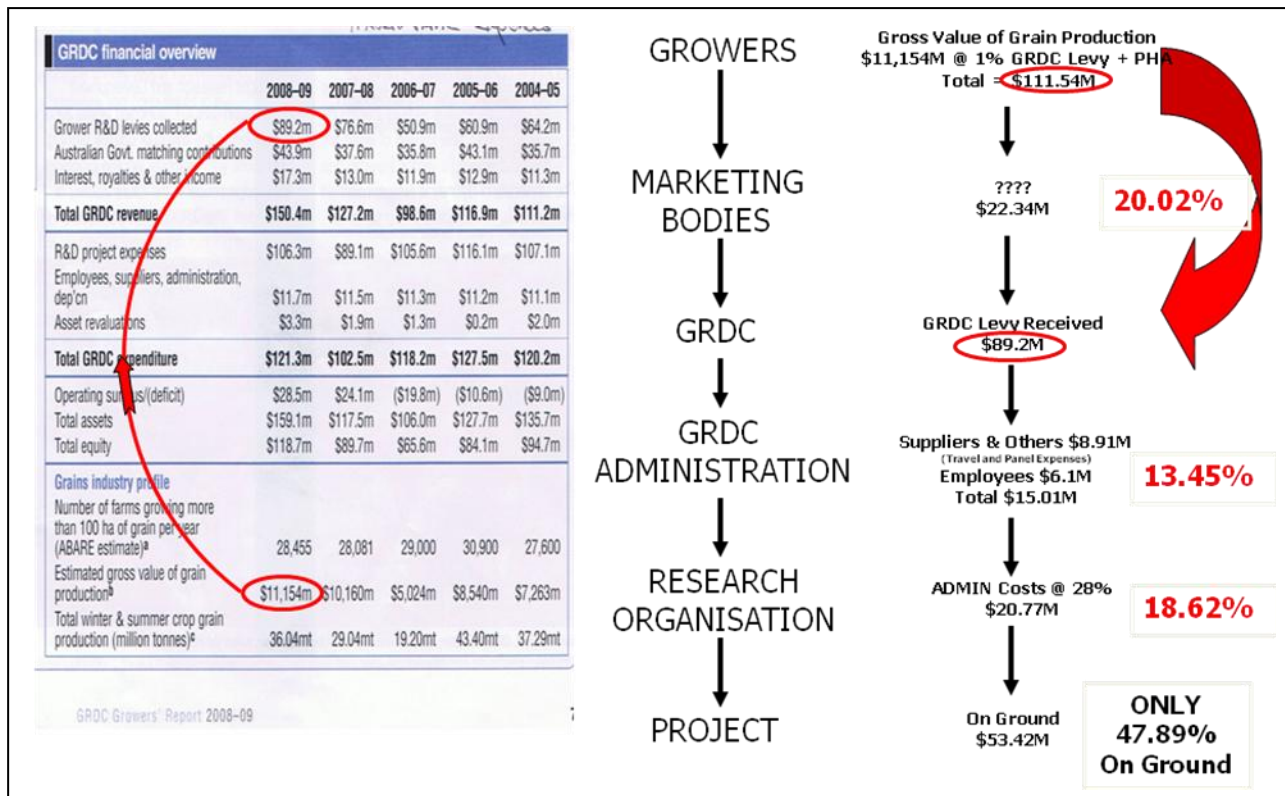


Figure 19. The GRDC funding model including the funding level at each stage of the model cycle.

Where did the \$22.34M (20.02%) of expected revenue go?

Of the \$89.2M in GRDC levies collected \$15.01M is used for; suppliers and others (\$8.91M) and employees (\$6.1M) within GRDC. This represents 13.45% of the collected levies being used to operate GRDC directly.

In recapping to this point, of the \$111.54M of expected levies, by the time the “unexplained losses” and GRDC’s operating costs have been removed only 66.53% of the expected levy is able to move to the next step of the research system.

The next step is for research to be funded through research providers. Informal discussions with individuals working for different research institutions in a range of research fields (who wish not to be named in this report) suggests that the type of “overheads” for an organisation to undertake the research is in the order of 28% of the cost of the research itself.

In the example being given here that would suggest of the \$74.19M (66.53% of estimated maximum levy) available to go into the research projects another 28% or \$20.77M is charged to the research work for providing the organisational needs of hosting the research. Typically this would include, “on costs” such as superannuation, leave liability, workers compensation, vehicle usage, office space etc.

What is left is what can be categorised as “on ground” those monies that will be directly applied to research work by way of salaries, field trials, plot markers, chemical analysis etc. The GRDC annual report is the only document that allows growers to scrutinise the funding of research within GRDC and this would mean that just \$53.42M of a possible \$111.54M (47.89%) reaches a point that growers would call “on the ground” research

In the same year being analysed here, the Federal government contributed 27% of GRDC’s total revenue. Conceivably only 12.9% of those monies actually make it to on ground research. While we are concerned as growers about the inherent “losses” in the revenue stream, the taxpayers’ dollars are receiving the same treatment.

To further compound the issue of how much money actually makes it to the research field, is the ongoing disparity between those who fund the levy and how much of those proportionate funds make it back to the funding regions. Figure 20 demonstrates total grain production by GRDC region expressed as a percentage which has been plotted against the percentage of GRDC funds flowing back to the region. It is clearly obvious that both the Northern and Southern GRDC regions receive proportionally more than their production would dictate whilst clearly the Western region is receiving proportionally less.

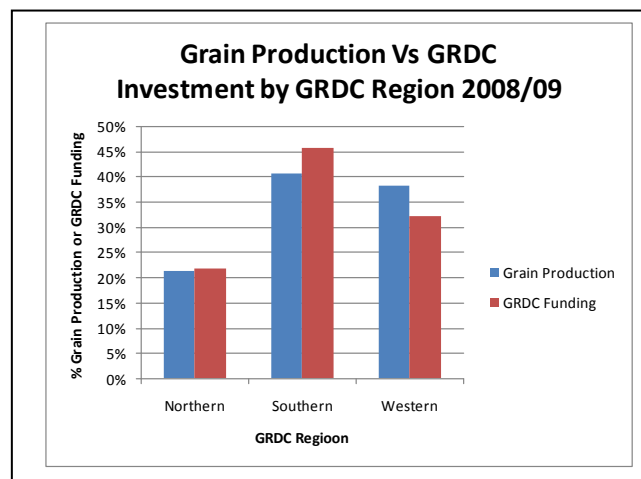


Figure 20. Grain Production Vs GRDC Investment by GRDC Region 2008/09.

## 4.0 Towards a New Model

### 4.1 Historical Evolution of Economic Development Models

Francis Bacon (1561 – 1626) first proposed the “linear model” for economic growth:

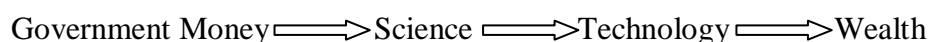


Figure 21. Francis Bacon linear model for economic growth. (Kealey, 2009 p17)

Bacon believed that science needed to be funded by the state because research was, in his words, a “universality”. Bacon believed that no one will pay for its (technological) development because no one will pay for the development of a concept that cannot be monopolised but that will be used largely by others, including competitors, enemies and the unborn (Kealey, 2009 p17)



Adam Smith (1723-90) lived 150 years after Francis Bacon. He believed that science flows out of and not into technology and that research did not need government subsidies – rather he proposed that industrial competition underpinned innovation. (Kealey, 2009 pp51 and pp59)

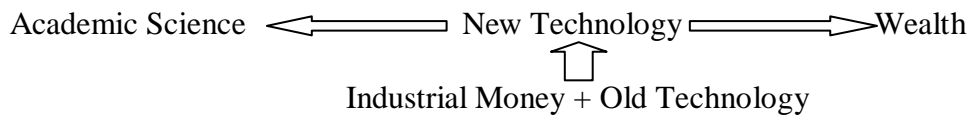


Figure 22. Adam Smith's economic development model (Kealey, 2009 p51)

## 4.2 Kealey Model

Dr Terence Kealey the Vice-Chancellor of the University of Buckingham has analysed both the history of agricultural development and the philosophies and methodologies that civilisations have taken to advance development.

The WAGG interpretation of Dr Kealey's work is demonstrated in figure 23.

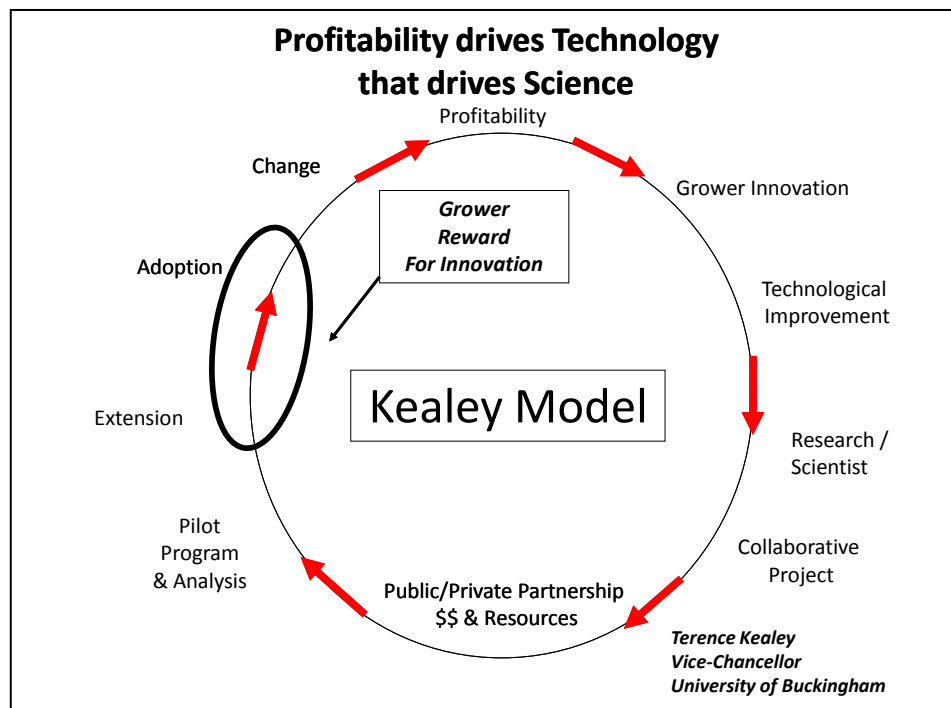


Figure 23 :- Kealey Model as interpreted by the W.A. Grains Group Inc. May 2010 from the book "Sex, Science and Profits "How People Evolved to Make Money". Vintage 2009.

An example of this model in action is best described with a case study.

### Case Study Example – No Till Point

#### **Profitability**

The Harrington Bros of Darkan, Western Australia looked to increase the profitability of their property by moving into cropping in what was seen as "sheep" country. What they found was that conventional full cut cultivation facilitated increased soil erosion in their farming system. Although they believed they could crop the soil they needed a way to do so without increasing the risk of soil erosion.

### ***Innovation***

In 1983 the Harrington Bros created what is widely considered the first no till seeding point. This was a direct grower innovation driven by the fact that their ground was getting too wet to adequately sow a crop and the risks of soil erosion were too large.

### ***Technological Improvement***

The Bros. development of the narrow tillage point (now known as a knife point) introduced technology new to agriculture where tungsten is welded onto the face of the point. The practice of “hard” facing is technology taken from the mining industry. Tungsten is used on mining equipment to prevent excessive wear.

### ***Research & Collaborative Project***

The Harrington Bros then undertook research work to assess if the no till point system would be beneficial.

Their own research would demonstrate over time (12 years) that the no till point sowing system allowed for:-

- Cultivation of the soil horizontally and not vertically
- Less disturbance of the soil created less germination of weeds
- The ability to use increased conventional chemical rates without damaging the crop being sown because the soil is being thrown out of the row into the inter-row covering the chemical and improving the efficiency.
- Benefit to lower rainfall areas as it promoted increased moisture conservation
- Benefit to high rainfall areas as it decreased sheet and rill erosion due to the way the system only cultivates approximately 15mm every 200mm. (Conventional points cultivate 100 – 200mm every 100 – 200mm spacing's (full cut)) Effectively no till cultivates only 7.5% of the soil rather than 100%.
- Less water erosion and more water harvesting due to the practice of using no till points and sowing to the contour. This effectively created hundreds of mini contour banks holding water further up the landscape. By default this also believed to assist in a decrease in the rate of salinisation of valley floors.
- Less wind erosion potential as less physical soil is disturbed.
- Less fuel usage as there is less physical soil being disturbed.
- Less capital cost as there is a lower horsepower rating required for tractors to pull a seeding bar. Conversely there could be increased implement width for the same horsepower rating.
- Halving of labour rates as there was no need to “rip up” (cultivate the soil) prior to the sowing operation.
- Halved the machinery capital cost as there was no need for the second tractor and cultivator bar.
- Improved soil structure due to decreased soil disturbance.
- Encouraged stubble retention as there is better trash flow clearance. i.e. machines are generally on 260mm spacing's and the machine tool bars can be set up to allow adequate stubble from the previous years to “flow through” the machine and not “bunch up” in front of narrow spaced tynes.

### ***Public and Private Partnership Resources***

Formation of the WA No till Farmers Association (WANTFA) in 1992 by Ray Harrington and other like minded growers with the focus of “growers helping growers” was the first key to the wider adoption of no till farming. The partnering with commercial manufacturing company

AgMaster in 1995 to produce what is widely recognised as the first no till point (Harrington Point) lead to early adoption by lead farmers particularly in the low rainfall “Lake Grace Region” of WA. Once growers could purchase the points and the adaptors to suit their current machines other companies began to invest in the research and manufacture of no till points.

### ***Pilot program and Analysis***

The move to no till points also facilitated improvements in “tool bar” technology and tyne technology which lead to seeding machines with higher breakout tynes and the development of the hydraulic tyne. The tyne spacing went from 150mm (6”) average to 250mm (10”) average and the machine went to 3 or 6 tool bars (rows of tynes) to promote better trash flow.

To help improve trash flow meant that the previous year’s crops were harvested lower. The harvester then mulches the stubble into smaller pieces which subsequently encouraged a more rapid breakdown of the stubble. The increased stubble retention has lead to increased soil organic carbon levels over time. The increased stubble also provided a mulching layer which improved moisture retention in the soil and further decreased wind erosion events. The low harvest height and the better trashflow also decreased the need for “scorched earth policy” where growers would burn paddocks corner to corner in order for seeding machinery to be able to pass without stubble bunching up and blocking the seeder. The new machines could handle the trashflow and allowed for less edge to edge burning or more strategic burning strategies such as windrow burning for integrated weed management.

### ***Extension***

The WA No Till Farmers Association (WANTFA formed 1992) were the primary extension agent for this technology. WANTFA is the oldest notill organisation in Australia. This organisation also undertook a research role in the second cycle of the Kealey model to scientifically evidence the improvements that the system had demonstrated in the field.

### ***Adoption***

Adoption of no till technology was very quick by extension standards with wide adoption by the year 2000 (typically change in agriculture takes 10+ years). It highlighted the massive advantages that lead to the development of specialised no till machinery that could be purchased “off the shelf” and used by growers.

### ***Change***

The farming change to notill was relatively swift by change standards, initially the use of no till points on existing machines closely followed by purpose built machines with higher tyne breakout and better trash flow. The interesting fact that it was the low rainfall <325mm farmers that adopted the technology the fastest in WA as opposed to the higher rainfall steeper landscapes for which the technology originated.

The traditional “rip up and seed” became a “rip up and seed with no till points” became a one pass no till seed in a 10 year period in WA.

### ***Profitability***

The profitability and environmental benefits were clear to growers and the change was rapid. All of the research benefits in the “Research and Collaborative Project” phase of the cycle continued to be confirmed anecdotally by growers. It was not until the second cycle of the Kealey model that the scientific research of organisations such as the WA Department of Agriculture and Food published scientifically qualified information for the world commencing with their no till farmnote series in 1996.

### 4.3 Focus on the “Barefoot Farmer”

Dr Kealey (Kealey, 2009 p182) has stated that in the 1700’s “laisse-faire Britain, who’s laboratories and formal scientific education were pathetic, fostered the Industrial Revolution, while France, which possessed the finest labs and research schools in the world, lagged economically”.

Kealey goes on to say “that the development of the steam engine, the one artifact that more than any other embodies the Industrial Revolution, owed little or nothing to science; it emerged from pre-existing technology and was created by uneducated, often isolated, but commercially incentivized men who applied practical common sense and intuition to address the mechanical problems that beset them” (Kealey, 2009 pp 108-181).

The point is that there are significant technological advances available to the grains industry if those “on the factory floor (“barefoot farmer”)” are identified for their knowledge and abilities to solve problems in their industry.

The current model used by the GRDC continues to foster the linear model of research, even though since the 16<sup>th</sup> century it can be shown to clearly fail.

Not only is the system flawed, but the lack of technological advances identified by the GRDC has all but stopped. A 0.9% cost (GRDC levy) to produce a 0.8% productivity gain (ABARE, Australian Farm Survey Results 2007/08 to 2009/10 pp27) does not keep pace with the costs of production.

To further highlight the problem, in the 2008/09 GRDC Annual Report there is a 32 page list of current research work. However there is no ability via the website to access information on any of those projects either by key word searches or by code searches. It cannot be ascertained as to the research priorities of the project, where it is being run, what findings are being made.....nothing.

Not only is information not available on any 2008/09 projects there are 4196 projects listed from 2002/03 to 2008/09 (not including 2003/04 year which has no listed projects on the website) and of those only 7% have any information about the project that can be accessed by growers, and none of these has a final project paper to review the project as a whole. Effectively for every 700 projects listed by GRDC only 1% has any information listed on the website that growers or stakeholders can access. Indeed in a conversation with a very senior DAFWA manager he clearly indicated that organisations such as DAFWA are unable to “drill down” into GRDC funded projects to better target future projects due to the lack of transparency in the GRDC system. Figure 24 below demonstrates the number of projects listed by GRDC graphed against those projects which growers can access.

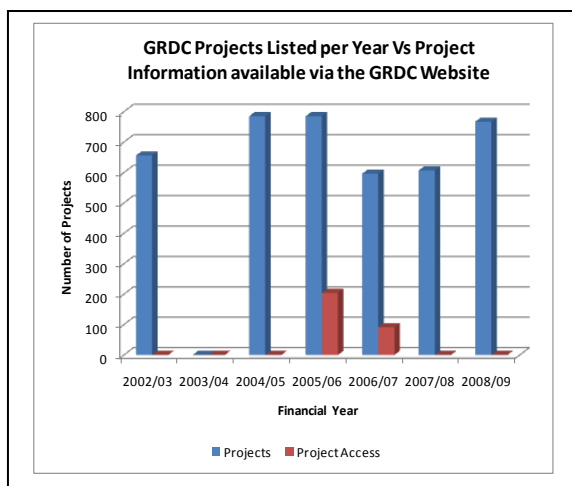


Figure 24:- GRDC project numbers for each financial year graphed against the number of projects that have any level of project information available to growers via the GRDC website.

As levy payers and as tax payers how can the grower base be satisfied with this lack of transparency? In effect the inability to source research, development and extension information is denying growers the ability to make evidence based decisions on the value of the GRDC's investment of grower and taxpayers dollars. Additionally the lack of transparency does not allow for growers to source information for use in their own businesses or for the "barefoot farmers" to undertake potentially cutting edge technological advances in the face of research and science. How many opportunities such as the no till movement from an early stage have been underinvested.

## 5.0 Summary

WAGG does not support the GRDC in its current form. WAGG is committed to championing change within the GRDC in the following areas:-

1. Greater return on investment.
2. Growers to elect members to the respective regional panels and the GRDC Board.
3. Members to vote annually on the percentage of the GRDC levy.
4. Growers to be invoiced directly for their GRDC levy.
5. Greater proportion of GRDC funds "hitting the ground".
6. A greater focus on the "barefoot farmer" identifying those initiatives and ideas being generated from within the industry itself.
7. Greater engagement with growers through more regional grower groups.
8. Access to all funded research proposals, updates and final project reports.
9. An independent investigation into the duplication of research.
10. Training to be made available to growers in data analysis.
11. Greater direct investment back into the commodity that provides the income.
12. The GRDC to use a "fee for service" model for the evaluation of commercial products.
- 13. If items 1 – 12 cannot be achieved that "Western Australia should withdraw from the GRDC and look to fund its own research through the Agricultural Produce Commission Act of 1988 in Western Australia."**

## REFERENCES

Australian Bureau of Agriculture and Research Economics, ABARE 2010 “Australian Farm Survey Results 2007-08 to 2009-10”, ABARE, Canberra

Australian Bureau of Statistics in 2006 (Agriculture in Focus: Farming Families, Australia, 2006. Issued 12/08/2008).

Australian Grain (2010) “Windmill Grass Trials for the South West” Southern Australia Focus, January-February 2010 p viii

Australian Natural Resources Atlas Median Age of Farmers And Farm Managers  
<http://www.anra.gov.au/topics/people/individuals/popups/pop-up-01.html>

Borger, Catherine, et al. (2010) “Chemical Control of Windmill Grass” 2010 Agribusiness crop Updates, Department of Agriculture, Western Australia and the Grains Research Development Corporation pp 239-242

Countryman (2010) “Wheat Fee Under Fire” January 2010 p 45

Department of Agriculture and Food (2005) “2005 Crop Variety Sowing Guide for Western Australia” Bulletin 4655 Agdex 102/30 ISSN 1448-0352

Department of Agriculture and Food (2008) “Wheat variety guide 2008 Western Australia” Bulletin 4733 ISSN No. 1833-7236 February 2008.

Department of Agriculture and Food (2009) “Wheat variety guide 2009 Western Australia” Bulletin 4763 ISSN No. 1833-7236 February 2009

Department of Agriculture and Food (2010) “Wheat variety guide 2010 Western Australia” Bulletin 4795 ISSN No. 1833-7236 April 2010.

Farm Weekly (2009) “Using the Devil you Know at Doodlakine” February 2009 p 18

Farm Weekly (2010) “Season 2010 in Full Swing”, 18 March 2010 p38

Grains Industry of Western Australia, GIWA Crop Report June 4 2010  
[http://www.grainindustryassociationwa.com/attachments/File/Crop\\_reports/GIWA\\_Crop\\_report\\_June\\_4\\_2010.pdf](http://www.grainindustryassociationwa.com/attachments/File/Crop_reports/GIWA_Crop_report_June_4_2010.pdf)

Grains Research Development Association, “About Us – The GRDC”  
<http://www.grdc.com.au/director/about/aboutus>

Grains Research Development Corporation (2009) “Deep Ripping” Factsheet  
[http://www.grdc.com.au/uploads/documents/GRDC\\_DeepRipping\\_6pp\\_.pdf](http://www.grdc.com.au/uploads/documents/GRDC_DeepRipping_6pp_.pdf)

Grains Research Development Corporation, “Strategic Research and Development Plan 2007-12”.  
<http://www.grdc.com.au/strategicplan/index.html>

Grains Research Development Corporation (2009) GRDC Annual Report 2008/09.

Grains Research Development Corporation (2009) GRDC Growers Report 2008/09.

Grains Research Development Corporation (2009) Groundcover Cover Issue 80 – Soil Health Supplement. 01/05/09

Kealy, Terence, (2009) “Sex, Science and Profits – How people evolved to make Money”. Vintage Press.

National Variety Trials – NVT Online. <http://www.nvtonline.com.au/>

The National Research, Development & Extension Framework , Australian Grains Sector Research, Development and Extension Strategy June 2009. Powerpoint document.

The Profitable Soils Group (2009) “Identifying, understanding and managing hostile subsoils for cropping – A reference manual for neutral-alkaline soils of south-eastern Australia”  
([http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/soil\\_mgmt\\_subsoil](http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/soil_mgmt_subsoil))

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Figure 2. Cropping Sector Productivity Growth. Cited from The National Research, Development & Extension Framework. Australian Grains Sector Research, Development and Extension Strategy June 2009

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