Grains Research Development Corporation

Investment Analysis of Research, Development and Extension Issues in Australian Grain Farming Systems

Submission

W.A. Grains Group (Inc)
October 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 presents this submission to provide an evidence based, plain English discussion relating to the ten questions asked by the GRDC in its “Investment Analysis of Research, Development and Extension Issues in Australian Grain Farming Systems”.

In summary WAGG believes that the field of “agricultural consultants” should be added to the GRDC stakeholder list.

We believe that the GRDC needs to re-assess its stakeholder base and go back to its mission statement in returning real value to growers. It is time to redress the balance of power within the GRDC stakeholder base.

We propose the removal of the GRDC panels in favour of purpose built positions. These positions have the sole role to liaise with, listen to and interact with a wide range of growers. These positions would become the “eyes and ears” of the GRDC. They would have a very strong role in helping identify cutting edge industry research, development and extension being developed by the grower base. These roles would also be the conduit to evaluate programs/projects and operate in a teaching/mentor role in the extension of GRDC outcomes at a farm level.

WAGG is supportive of the proposed triple funding pathway (fast-track, standard process, intensive process) for research on the proviso that the system is able to evolve. We are supportive of greater transparency within the GRDC decision making process, rather than focusing on the consistency (process) by which the GRDC makes its decisions. Industry innovation is often a higher risk proposition. What we do know is that the status quo is not delivering outcomes to growers and the system must change.

In terms of project reporting it is not appropriate that for every 700 projects listed by GRDC only 1% has any information listed on the website that growers or stakeholders can access. It appears that there has been a blatant disregard for projects to report their outcomes in a way that is transparent to the funders of the research i.e. growers. Project accountability through project research findings and outcome reporting is not negotiable.

The GRDC must focus on growers, it must return value for the money, it must be willing to change.


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 provide an evidence based, plain English discussion relating to the ten questions asked by the GRDC in its “Investment Analysis of Research, development and Extension Issues in Australian Grain Farming Systems”.

As growers we can only comment from a “growers perspective” on the questions raised by the GRDC in the document.

We wish the GRDC to note that the Executive Summary of their paper does not engage the reader. It does not say the purpose of the paper is to gain growers input into changes within the GRDC. This is a typical example of how the GRDC “sidelines” growers rather than “engage” growers to participate in the development of new systems. The words of the executive summary “this paper aims to provide the basis for discussions on how these opportunities may be realized” is un-engaging. The fact that the GRDC is specifically going “out of its way” to try and engage growers in a “new” funding process and then counteracts this by “disengaging” growers with jargon is typical of how growers see GRDC today. If you want our input then use plain English, and engage the grower in the first sentence.


3.1 Identify Issues and Priorities

Question 1.1 – Are we missing any stakeholders?
Yes. WAGG believes that the AAAC (Australian Association of Agricultural Consultants) should be included as stakeholders.

Increasingly the GRDC is utilising the resources and data intelligence of professional agricultural consultants companies such as Planfarm, Farmanco and ConsultAg in WA to name a few.

The GRDC and the Department of Agriculture and Food WA consistently acknowledge (though the use of consultant firms i.e. Farmanco to present data sets at meetings/forums etc) that the
client data sets held by these companies are some of the best information able to be accessed. The depth of the data at a micro level for trend analysis of changes in agriculture both physical and financial is becoming more widely recognised. AAAC members are increasingly becoming providers of “refined” information to their client base often adding depth to the base information being provided by the GRDC or state department of agriculture. In some cases the AAAC member becomes a research provider to the GRDC.

WAGG surmises that the remainder of the “stakeholders” being referred to in the reference document are growers, grower groups, farming systems groups, state farming organisations, research advisory committees, researchers, government (state and federal) and the GRDC.

**The subsequent question that we believe should have been asked is :-**

“Is GRDC using the stakeholders to the best advantage in the identification of issues and priorities”

The answer to this question is emphatically NO!!

In the section titled “Identify” on page 5 of the reference document there is a statement that says “It must ensure the grain grower stakeholders maintain prominence in the IDENTIFY space.” The grower levy is the catalyst to leverage federal funds for ongoing grains research. However the grower is the most marginalized in the whole GRDC process.

**Example**
The Lake Grace Advisory District of the Department of Agriculture and Food in WA covers 2.7 million ha, (1.7 million arable ha) produces around 1.5 million tonne of all grains annually and is situated in the less than 350mm rainfall isohyets (low rainfall zone).

If we assume an average grain income of $250/tonne and a 1% GRDC levy then on average $3.75 million is generated from this area in GRDC levy annually.

Yet the growers in this area are serviced by a barely functioning local Department of Agriculture office, the research station has been closed, they do not have a grower group, only 42 – 50% of growers in the district employ consultants (ConsultAg, Planfarm, Farmanco etc), and there is only one full time and one part time company agronomist located in the area.

So how does an area like this get its issues heard?

How are their research priorities fed into the GRDC system?

How do these growers get “bang for their GRDC buck”?

On the odd occasion that the GRDC Western Panel does visit the area it is done at the behest of organisations such as the WA Grains Group. WAGG called a public meeting at Harrismith on the 14th of October 2008 which 17 farmers attending, 10 of which were WAGG members. (Source :- Meeting notes taken by Debrah Clarke, WAGG Secretary). Outside of this there has been little or no formal avenue for growers to put forward their issues to the GRDC.
Given the wide range of sources, in what ways could the GRDC gather this information in an accurate, more timely and efficient manner?

For grower input into the IDENTIFY stage of the GRDC model the WAGG propose the following model.

WAGG proposes that the GRDC invest in a Talent Identification Team (TIT). These people would be widely experienced in the grains industry and may come from any section of the industry including growers themselves. Their role is to be the eyes and ears of the GRDC.

Identify talent and innovation
Innovators such as the Harrington Brothers (Harrington No-till point) struggled for years believing in what they were achieving (refer attachment 1 Case study) with no champion for their cause. The reality is that the Harrington Brothers changed the face of farming in Australia with the invention of the no till point.

Anecdotal evidence shows that growers in the “youngest” farming areas i.e. cleared in the 1980’s in the lowest rainfall regions of WA have the greatest thirst for the uptake of new technology. i.e. they were the first to take on no till points, and they drove the machinery manufacturers for better seeding bars to suit the high breakout tynes needed for the one pass operation. They were fast adopters of GPS technology in using auto steer and are some of the first using variable rate technology. You will also find tramline farming gaining momentum in this area especially on farms with no or limited stock.

This area is also home to the “world first” on farm grain storage facility using solely nitrogen to control insect pests. This is a privately funded infrastructure (new silo complex $250K and purpose built mobile nitrogen generator $70K) project that has allowed a “real time” research partnership with Murdoch University and the CRC for Stored Grain Insects. The project is destined to provide categorical proof of the ability to control on farm grain insect pests using nitrogen only. The GRDC projects would never have been able to progress so quickly with the core research had a grower not had the drive to create the environment in which the large scale work could occur.

Gather intelligence on current and emerging issues
Growers will largely not go to a daylong meeting with the GRDC to discuss R D & E. They will however engage in one on one discussion with someone (like a TIT) around a kitchen table or riding around in the ute/seeder/harvester. Growers are also likely to be more open about their thoughts and ideas in a “closed” one on one context rather than in a group. They are also more likely to engage in conversation with someone they have come to know over time.

The TIT “sleuthing” (detective work) would allow the GRDC a dynamic research “idea environment”. It would allow the GRDC be able to pick up on research themes and to be able to help identify those “barefoot farmers” who have the ideas, initiative, passion and drive that leads to the innovations in farming.

Feedback mechanism on seasonality and GRDC performance
The TIT’s would keep the GRDC “locked into” what is really happening “on the ground” through all grain producing areas in the state. They can be the ones to help feed seasonal information to key research partners and be the independent advocacy voice for grower initiatives. The TIT’s can attend any grower function and circulate amongst the growers to gather “intelligence” on
seasonal conditions, current and emerging problems, and look out for those “nuggets of gold” that are the innovations in agriculture.

**Funding of TIT’s**

The TIT’s should be fully funded by the GRDC in replacement of the panel members. They should be independent of the state departments of agriculture but they could be “housed” with Department of Agriculture district offices to provide basic infrastructure and a business and cultural support system for these officers. The TIT’s would preferably be based regionally, however the need for the “right people” to do the job does outweigh the “base location” of the officers as they would be highly mobile a majority of the time.

There is an emerging move back to regionalisation in WA with some banks increasing their opening hours in country areas and organisations such as St John Ambulance in WA to move management, training and more paid paramedics to small regional locations.

**Length of Tenure Important**

One of the biggest factors of the TIT role would be the need for continuity in the role. Quite simply the “right person” who has tenure for 5 – 10 years in the role can provide the insight, can maintain the relationships, and can better identify research themes needed. With the right contract in place, including a detailed job description including reporting mechanisms and regular (6 monthly) performance reviews, there can be enough checks and balances to ensure that the TIT’s are providing value for money.

**TIT’s and the Triple Funding Pathway**

If we couple the TIT role with the proposed triple funding pathway model, then we believe that the IDENTIFY component of the IDA process (Identify, Decide, Act) would be more engaging and provide better “whole picture” on ground support for new and emerging R, D & E.

The advent of the TIT role will enhance the advocacy role in the provision of “sales pitch” for new and emerging ideas. This would complement individual initiatives such as Professor Stephen Powels of the Australian Herbicide Research Institute (AHRI) lobbying the GRDC for the provision of GRDC funding to the continuing development of the “Weed Destructor” by Ray Harrington. The TIT role would replace panel members “advocacy”.

**Question 1.2 – How does the GRDC co-ordinate across stakeholders better?**

Co-ordination across stakeholders is difficult. Caroline Gijeslinckx in her papers titled, “Co-operative Stakeholders. Who Counts in Co-operatives, and How?” talks about the type of stakeholders and refers to a diagram published by Mitchell, Argyle and Wood in 2007. The types of stakeholders as identified in figure 1 bring to light a couple of things with regards to question 1.2.
- **Dormant stakeholders** do not exercise power because their claims are not or not sufficiently urgent and legitimate. However, they have potency (sic) to increase in urgency and legitimacy.

- The claim of **discretionary stakeholders** is legitimate but not urgent, and discretionary stakeholders lack power to exercise an influence on the organization.

- **Demanding stakeholders** do have urgent claims, however they lack legitimacy. They can be demanding towards the management of an organization, but they have no power.

- **Dominant stakeholders** do have power and their claims are legitimate, albeit not urgent. They should be involved in the decision making process of an organization.

- **Dangerous stakeholders** also have power and their claims are urgent. However, their claims are not legitimate. They might use illegal means to extort their claims from managers. An organization should keep a weather eye open for dangerous stakeholders.

- **Dependent stakeholders** lack power, although their claims are legitimate and urgent. They depend on others, such as dominant stakeholders, to use power to force their will on managers.

- **Definitive stakeholders** are powerful and their claims are legitimate and urgent. Along with the dominant stakeholders they should be part of the decision making structure of an organization.
A/ Redressing the Stakeholder Power Balance

A 1/ Stakeholders Vs Stakeholder Power
In question 1.1 “Are we missing any stakeholders?” WAGG have agreed on the list of stakeholders with the addition of Agricultural Consultants. What we do not agree on is the balance of stakeholder input into the direction and function of the GRDC.

A 2/ Stakeholder Analysis (Mitchell et.al. 2007 model)
Question 1.1 surmises that the “stakeholders” being referred to in the reference document are growers, grower groups, farming systems groups, state farming organisations, research advisory committees, researchers, government (state and federal), AAAC and the GRDC. Figure 2 is the WAGG interpretation of how the GRDC stakeholders fit into the stakeholder model as described by Mitchell et.al 2007.

Figure 2 : Types of stakeholders with GRDC stakeholder overlay. Mitchell, Agyle & Wood (1997) cited by Gijselinckx (2009)

A 3/ Redressing the Balance
WAGG see that individual growers are dependent stakeholders in the current method of operation of the GRDC. That is that growers are “stakeholders lack power, although their claims are legitimate and urgent. They depend on others, such as dominant and definitive stakeholders, to use power to force their will on the GRDC.”

WAGG believes that growers as individuals should be definitive stakeholders rather than the dependent stakeholder role they play now.
The first step to co-ordination across stakeholders is to make sure each stakeholder holds the “balance” of power they deserve within the GRDC model. The TIT methods described in question 1.1 if applied well, can go some way to helping this balance change at a grower level.

You need only to consider the relationships livestock agents, bank managers, and ABARE have with their “information sources” to see how the quality of local information can be enhanced and how well informal (organic) grower networks are still used widely in agriculture to transmit information and to foster change in “on farm practice”.

However to redress the balance at GRDC management and board level WAGG believes it will require a quantum shift in the way the GRDC perceives and treats growers as stakeholders.

There has been wide condemnation of the GRDC in the rural press throughout Australia in the last year. This only goes to substantiate the claims by WAGG that the GRDC are not engaging with growers at a significantly intense level. Refer Attachment 2

B/ Project Information and Results to be Web Databased.

To further exacerbate poor stakeholder co-ordination, is the lack of ability to look at and interrogate GRDC projects, data and results. GRDC stakeholders can’t see what has/is being done by the GRDC projects, let alone be able to propose integrated projects that build on previous R D & E. The GRDC’s ability to co-ordinate between its stakeholders in terms of project literature reviews and project outcomes is best described as highly inadequate.

By example, in the 2008/09 GRDC Annual Report there is a 32 page list of current research work. 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 any project, where it is being run, and 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 Department of Agriculture and Food Western Australia (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 3 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. (WAGG, 2010 Australian Government Productivity Commission Government Investment into Research Development Corporations)
In effect the inability to source R D & E information is denying growers the ability to make “evidence based” decisions on the value of the GRDC’s investment of grower and taxpayers dollars. The lack of transparency does not allow for growers to source information for use in their own businesses or for the “barefoot farmers” (industry systems and technological innovators) to undertake potentially cutting edge technological advances in the face of research and science.

How many opportunities such as the no till point have been underinvested?

Additionally how poorly is research being co-ordinated now within the GRDC and across Agricultural R D & E in Australia because of the lack of transparency on projects and outcomes? The evidence clearly proves that the GRDC is a project based organisation rather than an outcome based organisation.

GRDC information should be public as it has been funded publically. It is unacceptable in this age of technology that the GRDC’s repository of information is not widely accessible. It is particularly heinous as under the GRDC funding guidelines all the information is required to be held on file, and for many years the data has been required to be submitted electronically.

The GRDC is not the only culprit in this area, state department of agriculture’s are also very culpable hiding behind the guise of “corporate knowledge”.

**Question 1.3 – Is the GRDC identifying the issues appropriately and in sufficient detail to allow an appropriate response?**

No the GRDC is not identifying the issues appropriately.

The supposition by GRDC is that if you get representatives of a list of organisations together, (private, public, independent) that they will understand the key issues. This is simply because they represent groups.

Take for instance the GRDC Industry Engagement Forum on the 8th and 9th February 2010 at the Burswood Entertainment Complex in Perth hosted by the GRDC Western Panel. Fifty people attended the workshop.

Fifty-six percent of those attending the forum represented GRDC or state/federal government funded bodies. This could effectively allow those persons to “push” for their own projects.

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**Figure 4 : Stakeholder representation at GRDC Industry Forum, March 2010.** Source: GRDC Western Panel – Industry Consultation Forum – Outcomes Report, March 2010
Twelve percent of those attending the forum i.e. industry representation and farm consultants are not listed as GRDC’s primary stakeholders.

Twenty-four percent of attendance directly represented growers but only 6% participated solely as growers that were not currently receiving GRDC or state government funding.

If we refer back to section 1.2 in this document, this is ongoing evidence as to the issue of “balance” in the “IDENTIFY” space of the GRDC. This issue particularly relates to growers who do not have active grower groups. In the grower groups listed for this forum there is a gap from Moora in the north to the Stirling Ranges in the south, from the Darling scarp in the west to the eastern fringe of the agricultural zone without a voice at this forum.

We would also argue that although the title of the paper was “Industry Consultation” where is the “grower consultation”?

![Map of Western Australian grain growing areas by agricultural zone. The red circle shows some of the “gap” areas from a grower group perspective at this meeting.](source)

**Figure 5:** Map of Western Australian grain growing areas by agricultural zone. The red circle shows some of the “gap” areas from a grower group perspective at this meeting. Source: GRDC Western Panel – Industry Consultation Forum – Outcomes Report, March 2010

**Question 1.4 How do you wish for this level of consultation to occur?**

At a pure industry level, the consultation process followed by the GRDC Western Panel using “program logic” as a framework is appropriate. The appointment of a facilitator with the background such as Mr Bessen is also a positive point for the process.

By and large the “big picture” opportunities listed in the report which firmly sit in the “identify” space of the IDA model are not surprising given the people attending the forum. This is particularly true given the “nominal group” voting technique used to prioritise the identified areas.
Nominal Group Technique
The criticism here is the voting technique used. Each participant was assigned 10 votes to their first choice, 9 votes to their second choice down to 1 vote for their tenth choice.

Effectively each person was given a vote value of 55 to be used over 10 projects. The aggregation of the votes for each identified area then formed the ranking of the R D & E areas of most need down to the least need.

“Lost Votes”
The first problem identified is that of “lost votes”. If there are 50 people in the room given 10 votes valued from 10 to 1 then each person can cast votes to the value of 55 (10 + 9 + 8…).

The total possible value of votes cast at this forum was 2750 (50 people with vote value of 55). However at the end of the process in Perth just 1695 votes were cast leaving 1055 or 38% of votes not cast.

Figure 6: - GRDC Industry Consultation Forum March 2010. Nominal group voting technique demonstrating the number of votes possible to be cast versus the number of votes actually cast.

Vote Value.
The second issue is that of vote weighting. In the Perth example 20 people cast a vote value of 167 for “Profitable legumes in all soil types and climates – adaptability” project. Therefore as the project with the most of votes this becomes the most important area for RD & E in WA as determined by this forum.

Although nominal group technique allows individuals to vote as they see fit, and not necessarily comply with “group think”, or pressure within the group to vote in a certain way, it does have a downfall when it comes to the value of the vote.

For Example, assume that 5 researchers used the vote of 10 for a particular project giving a vote value of 50. Let us also assume that 25 growers gave a separate project a value of 2 which also equates to a vote value of 50. Which focus area has the highest level of importance?

What affect should stakeholder weighting have?

Shouldn’t those who pay the money have the greatest say in how that money is spent?

Do 25 growers have a greater stakeholder value than 5 researchers?
Nominal Group Technique Vs Weighted Vote Averaging

Column one in table one below shows a focus area (research area) listed as a number in the first column using a weighted vote average. Note only the top 30 areas are presented in table 1.

Column two shows what ranking that focus area had using only nominal group technique and no vote weighting.

The third column shows the total number of votes that focus area received and what gave the focus number its initial number i.e. 167 vote value was project focus 1 in an un-weighted vote listing.

The fourth column shows how many votes were cast for that item i.e. the number 20 indicates that 20 people cast votes for that project focus.

The fifth column demonstrates the average value of the vote for that focus area i.e. for a project with 167 vote value and 20 people voted that gives an average vote value of 8.35.

The sixth column demonstrates the weighted average of the votes i.e. 8.35 divided by 20 people equals 0.42. The lower the number the more highly the project area is valued.

Table 1: Focus area (project area) ranking using weighted vote averaging vs. nominal group technique.

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<th>Project Number (original ranking)</th>
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<th>Number of Votes Cast</th>
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<td>27</td>
<td>3</td>
<td>9.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>

In the case of table 1 we clearly see a change of ranking when we weight the vote. Ideally we would also weight the vote based on stakeholder influence i.e. growers who pay the money should have a greater influence on the decision than GRDC or the federal/state government who happens to have 2 or more people attending the forum. NB these two groups made up 56% of those who attended the forum.
Table 2 identifies the changes in the ranking of the top 5 focus areas from using total vote methodology to a weighted vote methodology.

**Table 2 :- Western Panel – Industry Consultation Forum. Ranking by participant vote versus ranking by weighted participant vote.**

<table>
<thead>
<tr>
<th>Original Top 5 Focus (Project) Areas</th>
<th>Weighted Top 5 Focus (Project) Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Ranking</td>
<td>Focus (Project) Area</td>
</tr>
<tr>
<td>1</td>
<td>Profitable Legumes</td>
</tr>
<tr>
<td>2</td>
<td>Biotechnology</td>
</tr>
<tr>
<td>3</td>
<td>Frost</td>
</tr>
<tr>
<td>4</td>
<td>Drought Tolerant Crops</td>
</tr>
<tr>
<td>5</td>
<td>Researcher/Grower knowledge exchange.</td>
</tr>
</tbody>
</table>

Table 2 raises the question as to which of these project focus areas of the top 5 results will make a fundamental difference to the growers “bottom line”? WAGG would argue that this industry process needs to be counterbalanced with the information that the TIT role outline in question 1.1 could provide.

By way of example some grower ideas are not listed in the industry consultation forum focus areas.

- Notably there are no engineering issues highlighted in the industry consultation forum.

- Consequently where do innovations like the Harrington Weed Destructor (now funded by GRDC but only recently) find a voice in project focus?

- Given that there is 15.8Mt of on farm grain storage in Australia (ABS, 2010), where are the innovation in on farm grain storage techniques? Where are the alternatives to steel sealed silos i.e. plastic silo’s, and what progress has been made on the use of nitrogen for fumigation vs. phosphine?

- Where is the research work on the effect of “heat waves” leading up to the harvest? This became highly relevant after the crop yield devastation in 2009 in WA.

- Where is the work that identifies the interaction between delaying sowing to avoid frost windows and the impact that heat stress has during grain fill? Is the information available on these projects? Can the information be accessed by growers?

**Question 2.1 – Is the IDA model of fast track, normal and large scale initiatives a good one?**

Yes. The triple pathway funding proposal is more dynamic than the historical single approach to funding. This is particularly true as the current funding cycle is so rigorous and cumbersome.

The status quo is clearly not working and the GRDC must change. This proposal is as good as any, provided it is seen as a “living” model that can evolve.
Question 2.2 – How do we achieve consistency in deciding which action to take?
Just as there are varying opinions on the value of what research is being funded now, so it will be under the new proposed IDA model.

The reality is that innovation is often dynamic, often new ideas are born from the most obscure places, and the GRDC team have been charged with the identification of industry R D & E.

The R D & E field is littered with failures, but have the failures lead to new systems? We often learn more from what has failed than we do when the research validates the hypothesis.

Consistency in deciding what action must be taken is not as important as the transparency in taking that action. The evidence used by the GRDC to determine whether or not to invest in a project should be verifiable with real justifiable reasons for investing or not investing. The decision should not be a string of bland statements that say nothing.

The GRDC should be taking calculated risks in striving for new technological, social and economic breakthroughs in the grains industry. However they should also be transparent in how those decisions are made.

Question 2.3 – What is the most effective feedback mechanism to all stakeholders on decisions made?
As growers we are learning from our past mistakes. As a group we are often complacent about organisations having our “best interests at heart”. Since deregulation of the grain industry, growers are challenging everything that they invest in, the GRDC included.

One of the key failings of the GRDC is that as an organisation it is not performance driven. If growers fail (as the decline in Total Farm Productivity clearly shows) the GRDC has no need to respond as the GRDC’s funding stream does not change.

Growers can make large losses and the GRDC still get their income. The GRDC’s income is tonne driven and not profitability driven. Equally the GRDC is a project driven and not outcomes driven organisation.

The GRDC must deliver return to the capital invested by growers for this service. In simple terms, no performance…..no GRDC.

The TIT process allows not only for R D & E input from a grower level it also allows for the evaluation and awareness of current and past projects. The TIT’s can provide valuable feedback on the relative worth of GRDC projects to on farm decision making.

Question 3.1 – Do we have the required skills and capacity and if not how do we get them?
What you should have asked is how long is a piece of string!

What growers know is that capital is being invested with little corresponding return.

The reality is that there is no way for growers to know the answer to this question. Beyond a list of project codes, project names, project locations (organisations housing the project) and the project contact name, that is about the sum knowledge a grower can have about capability. In question 1.1 this response document outlined the proposal for Talent Identification Teams to be introduced. This is clearly not a skill currently “in house” within the GRDC.
Question 3.2 – How do we co-ordinate activities?
Any alternative model has got to be better than the poorly focused and poorly co-ordinated pile of research that exists today.

GRDC must change and have a greater focus on improving the profitability of growers or as an organisation they are not capable of achieving their mission.

“The GRDC’s mission is to invest in research and development for the greatest benefit to its stakeholders – grain growers and the Australian Government. The Corporation links innovative research with industry needs. The GRDC’s vision is for a profitable, internationally competitive and ecologically sustainable grains industry.”
(Source: http://www.grdc.com.au/director/about/)

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 8 – 10% to get a return on investment of only 0.9%.

Fundamentally the GRDC need to get back to the mission statement and start returning value to growers. There is no point in growers investing 0.9% to get a less than 0.9% return.

Evidence of the need for change

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

Government Money $\rightarrow$ Science $\rightarrow$ Technology $\rightarrow$ Wealth

Figure 7. 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)

Academic Science $\leftrightarrow$ New Technology $\rightarrow$ Wealth $\uparrow$

Industrial Money + Old Technology

Figure 8. Adam Smith’s economic development model (Kealey, 2009 p51)

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.
WAGG’s interpretation of Dr Kealey’s work is demonstrated in figure 9.

![Kealey Model](image)

Figure 9: 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.

**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. Clearly there is a very good correlation to the role of the TIT’s as outlined in question 1.2 to foster the barefoot farmer for development from the “factory floor”.

The current model used by the GRDC continues to foster the linear model of research, even though since the 16th 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 0.9% productivity gain does not keep pace with the costs of production.
Organic Project Cycle
Figure 10 is a diagrammatic representation of WAGG’s vision for an organic R D & E model away from the current linear model used today.

The current funding model could be explained as a plant with a poor root systems. The reality is that fundamentally the root structure is the lifeblood of the plant.

In order for the root structure to develop more widely there needs to be greater “photosynthesis” and nutrient cycling in an evolving GRDC. In reality the most constant factor in the farming system is the grower (soil). What is not happening presently is the nutrient cycling to allow the soil to develop and be enriched. Instead we are utilising soil reserves to produce a plant with very little nutrient cycling.

Figure 10. WA Grain Group’s diagrammatic representation of an Organic R D & E Model.
Question 3.3 – What is the most effective feedback mechanism to all stakeholders on results generated?

Grower feedback
The TIT’s described in question 1.1 will assist in the direct assessment of the “quantity of” and the “quality of” GRDC publications, websites, partnerships and financially assisted programs such as National Variety Testing (NVT) at a grower level.

Website and Groundcover
The website is poor at results feedback, and publications such as Groundcover need to be reviewed. The reality is that the best information to growers is information that is locally relevant. It is information that has been synthesized and is relevant for an area. Publications such as Groundcover come across as project showcases rather than the “make a difference to me” information publication.

Factsheets
It should not take a major review of the GRDC for publications like Factsheets to be produced at a greater level. For example Factsheets for the GRDC only date since 2008 on the website.

Many of the factsheets are similar to some state department of agriculture farmnote/infonote etc.

Figure 11. GRDC publication of “Factsheets” by year of publication.

The GRDC should be quality assuring that the information on the web is accurate and available. In the case of the factsheet entitled “Rotations” published on the 26th February 2010, when we tried to access the factsheet on the 1st November 2010 there was no link to an actual document. Just a few words that outline what the factsheet contained. (source: http://www.grdc.com.au/director/events/factsheets?item_id=17485947D9D26497D82EDCDAFCDA48AD5&pageNumber=2)

NB Click the link to see this example.

Timely & Profitability focused
The GRDC must be timely. It must heighten its focus on information accessibility. The GRDC must be grower focused and at all times strive to improve the profitability and not just the productivity of growers. If it costs more to get the productivity without there being cost savings as well at the productivity growth then growers are simply “not interested”.

Note: The GRDC Review was announced in December 2009.
Fast Web & Electronic Publishing or Research
Fast web access to information is a key in the information exchange. The search engines must be clever and easily used. You cannot have just 1% of projects accessible at a range of levels electronically. 100% of the information must be available and accessible. Hiding behind “corporate knowledge” and fussing over intellectual property rights on information, has not provided the pace needed for growers to survive. It is time to move on.

Grower Productivity Focused – We are the client!
There must be a major shift within the GRDC and it must be soon or growers will be making a case for the GRDC to cease existence. Growers are “banging the table” and the noise is becoming deafening.

After all the billions of dollars spent through the GRDC, to be in a position of having such poor information, service and training provision for growers is a tragedy. It is also a tragedy that volunteer run grower groups have to help design a new system for the GRDC, as it appears incapable of being the master of its own evolution.
Attachment 1
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 sowing 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 vertically not horizontally.
- 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 is 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 from 3 to 5 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 no till 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 no till 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 Department of Agriculture and Food WA published scientifically qualified information for the world commencing with their no till Farmnote series in 1996.
Attachment 2
Examples from the Rural Press of growers dissatisfaction with the GRDC

“In 2008, the GRDC levies and grain royalties paid by the Stebers would have easily purchased a new car.”

Figure 12. Two examples of rural press from January and February 2010 from Western Australia on GRDC levies. (Farm Weekly (2009) “Using the Devil you Know at Doodlakine” February 2009 p 18)

Figure 13. Farm Weekly advertisement of 18th March 2010 demonstrating that none of the events being hosted by the GRDC were held in Western Australia. (Farm Weekly (2010) “Season 2010 in Full Swing”, 18 March 2010 p38)
Figure 14. GRDC article in the “Healthy Soils” Groundcover Issue. Note the imbalance of where the workshops were located across the nation. (Grains Research Development Corporation (2009) Groundcover Cover Issue 80 – Soil Health Supplement. 01/05/09)
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