Key concepts to increase the effectiveness of the publically funded agri-foods/fibre RD&E Sector

A Discussion Paper proposing key principles that could support the public RD&E sector increasing its value to the Australian community and industry

Overview

Since 1989 I have worked in and around the RD&E sector in Australia – first representing the interests of farmers in a policy/advocacy role for a state farm agri-political organisation, then developing and managing a national technology transfer program for a national RD&E agency, and more recently engaged in consulting work focussed on the delivery of R&D results to farmers.

I also draw on preliminary findings of a national RD&E survey undertaken by QualDATA P/L (in collaboration with CRRDC and the CRC Association) of which I am co-director. I also draw on a range of industry projects undertaken for RDCs and for agribusinesses – including evaluation projects undertaken by QualDATA. Some of this is unpublished and some commercial in confidence which is unable to be attributed.

My proposition is based on these factors:

- The RDC model is relevant and valuable in that co-funding demonstrates the intent for industry value and for community good value to be achieved – and each pays for their own needs to be met
- The publically funded R&D model in Australia has a strong culture of process focus rather than outcome focus – this has been largely effective for that purpose – managing for R&D outputs and in some cases for R&D outcomes
- The end users seek an outcome focus – however the process focus and risk averse nature of publically funded R&D over the last decade means this is problematic – and as a result end users have become highly frustrated at a perceived inability to access 'relevant outcomes to them' that they can 'adopt and apply to create changed practices'. This is in essence a 'culture nexus' – where the R&D process is significantly different from the outcome focused adoption required to lead to changed practices on-ground. So a more focused engagement of industry/community beneficiaries would be valuable.
- The way to end this nexus is through a re-alignment of process vs. outcomes. This creates a focus on facilitating practice change by end users through their access to relevant R&D program outcomes. Demonstrated achievement of change by end users needs to be validated by robust defensible evaluation based on Triple Bottom Line principles – to show the real needs of end users are being met. Benefit:cost based largely on financial/economic parameters are insufficient.
- Accordingly some fine tuning of the focus and management of RD&E in Australia is needed. RDCs are best equipped to lead this changed focus and bring with them CRCs, state agencies, universities and other pure and applied R&D functions/service providers
- This fine tuning is a separation of the R&D process – from the adoption process – from the marketing focus – of the current RDC model. The reason for this is to create the concept of an Adoption Supply Chain – where the needs of industry (short and long term) are given priority and the R&D focus is repositioned to where it belongs – as a 'process to develop innovative products, services and activities' that facilitate industry change and global competitiveness. It is the adoption of relevant new technologies by end users for commercial gain and community benefit that creates change – not R&D process. This is the alternative to the R&D process itself being the pre-eminent driver.

My recommendations are:

1. That RDCs continue as the core R&D model with a responsibility based on managing industry based R&D process – in other words the R&D is managed through a process based system that meets the needs of 'beneficiary industry' (as opposed to personal interests) and of the wider community
2. That one overarching sector focused collaborative RDC (an Adoption Corporation) takes responsibility for the practice change function, through its single defined focus on the demonstrated adoption of new technologies created by the RDCs (this includes the capacity building functions)

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3. This Adoption Corporation has buy-in from the wider agribusiness sector as they are a significant delivery mechanism and from the NRM sector as they are an incidental delivery mechanism.
4. That an aligned Marketing Corporation is also created that focuses on marketing of products created from R&D and related functions that benefit the wider agri-foods and fibre sectors and Australian community
5. That these three elements are inextricably linked through sector based steams that flow through them all. For example, if meat and livestock R&D occurs under the RDC model; they then ought to collaborate with meat and livestock specialist adoption personnel in the Adoption Corporation and as required collaborate with marketing specialists in the Marketing Corporation. This has similar characteristics to the current MLA structure with its current marketing division – by adding an adoption division with specialist personnel the varied functions remain specialised yet linked.

This separation is needed to ensure 'specific, specialised skills' are used in each of the RDCs, Adoption Corporation and the Marketing Corporation for those functions. Linkages across these functions are also proposed in recognition of the acknowledged RDC, state department and university 'silo effect' that minimises rather than encourages collaboration and skill sharing. Adoption outcome KPIs of senior staff with sector focused as well as specialist function responsibilities are also proposed to secure the matrix process.

It is acknowledged that in this paper a number of generalisations are made. While readers are at liberty to argue key elements of detail, the overall principles are important.

1. Key Industry Issues

In this paper the terms and notion of the agri-food and agri-fibre sector are used. This demonstrates that agriculture is the fundamental but not exclusive element of creating food and fibre products for use by consumers – domestic and export. This also demonstrates the importance of considering all elements of the food and fibre supply chains when thinking strategically about the purpose of national RD&E.

Further this demonstrates that the focus is about 'doing business' as opposed to 'doing R&D'. Businesses – farming, R&D, transport, processing, etc – must make business focused decisions as well as community good decisions throughout the supply chain. R&D is but one element.

Often farmers are regarded as a unique entity. They are unique in that:

- They face the vagaries of climate
- They are custodians and stewards of the land and natural resources
- They work in a somewhat unique industry.

They nonetheless are businesses that must make business decisions to make a profit. In many cases this is 'glossed over' by the R&D sector. The reason for this is that the business culture is less prominent and less well understood in the publically funded R&D sector. This is because the culture of a publically funded organisation is vastly different to a business that survives (or not) based on its ability to manage its profitability.

2. Key data

In the 2005 Cooperative Venture for Capacity Building (CVCB) report[1] after interviewing farmers and agribusiness advisers, I reported that in most agri-foods and fibre sectors the role of the agribusiness sector (see definition pg 105) has supplanted that of the public sector as an information provider and adviser. However this was largely unrecognised and unacknowledged particularly at government level and in RD&E circles. Further issues raised include:

- The most innovative and profitable farmers use agribusiness advisers as their primary information and advice source – as a result the agribusiness sector has the greatest influence on the decision making of these farmers. However publically funded agencies were generally unprepared to acknowledge or address this issue.

[1] *Stone, G 2005 – Agribusiness role in Extension Education and Training – a case study; RIRDC publication 05/086*

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- This is important because of the influence the agribusiness adviser sector has on the top 20% of farmers (as recognised through the Pareto Principle)
- Capacity building and human capacity issues are unrecognised yet structural issues for the agri-foods and fibre industries (as it is for the R&D sector)
- A human capital crisis is fast emerging in this industry and yet Australia is unprepared to seriously address it and manage the consequences
- The agribusiness advisor and farmer sectors are largely in tune in terms of contemporary information access and delivery methods/mechanisms/system/processes, in contrast to publically funded agencies that are somewhat more traditional.

In the 2009 CVCB report[2] after interviews with farmers, agribusiness advisers and RDC personnel, I reported a number of key issues:

- Engagement between the public RD&E sector and the agribusiness sector still remains relatively poor
- An understanding of the Segmentation of farmers is now crucial to ensure the adoption of new technologies (8x segments were identified and it was noted that additional segmentation is beneficial) – see pg 33. This is accepted practice in the sales and marketing industry yet is a largely unused practice in the Extension, Capacity Building, Adoption and Practice Change 'space' of the agri-foods and fibre industries
- Similarly the agribusiness (adviser) audience is also highly segmented
- The top 20% of farmers generally prefer that agribusiness advisers are the 'direct conduit' for information although they do seek information direct from R&D providers. This process is so they can obtain 'snapshots' of information and seek from their advisers the synthesis of 'what it means in practice'.
- There is a strong perception by farmers and advisers of 'lack of interaction and understanding between RDCs and agribusiness' and vice versa
- There is clearly a need to understand the key drivers of growers and advisers so that RDCs can 'do business' with them (pg 35)
- The varied key drivers between the publically funded sector (including RDCs, CRCs, government agencies, NRM bodies, etc) and agribusiness (including growers) is a significant impediment to engagement. This is encapsulated in the 'terms of trade (of engagement)' which is often problematic
- A primary issue regarding strong connection between RD&E providers and agribusiness is an understanding of the factors that affect delivery of technical information relevant to defined target audiences (see segmentation above)
- It is apparent that some form of information repository process accessible to agribusiness, farmers and the R&D community is crucial. The functional nature of such a repository was defined during the project (pg 37 and 44)
- The supply chain and route to market of R&D outputs was also defined (pg 46)
- A commercial information repository exists in Australia from which farmers and the advisers can readily access R&D results. This was investigated in detail during 2007 with a view to widespread adoption of the system – however the RDC sector is yet to engage with this repository (called FarmPlus) in any meaningful way. Similarly the R&D sector is dis-banding the AANRO repository which formed a key element of the route to market (QualDATA undertook the review of the AANRO project and reported in January 2010). It is noteworthy that the AANRO project was regrettably developed from 2006 onwards 'without the end in mind' and its development was based simply on process rather than outcome.
- While the RDC sector, the agribusiness sector and the ultimate beneficiary, the farming sector, all seek engagement and collaboration, the cultural and communication factors have so far generally precluded such engagement.
- Farmers have defined perceptions about a number of RDCs – MLA, AWI and LWA were seen to particularly dis-connected from farmer needs whilst GRDC and RIRDC were seen to have a connection.

[2] *Stone G 2009 – Maximising the Connection between RD&E Providers and Agribusiness; RIRDC Publication 08/180*

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- The synthesis of R&D outputs into outcomes, take home messages and 'how to apply this on-farm' is a key need of farmers. This is an area of collaboration for all parties, yet remains to be addressed by RDCs.
- The project proposed and defined an Implementation Plan to address these key issues and maintain initiatives to commence engagement between the RDC and agribusiness sectors. It was proposed to trial an engagement process then review its effectiveness across 7 of the RDCs and one CRC. However the proposed implementation phase did not proceed.

During the second quarter of 2010, QualDATA undertook an Extension, Adoption, Practice Change and Education Survey of Rural Research and Development Corporations and Agricultural Industry based CRCs in collaboration with the Council of RDCs and the CRC Association. While the final report will be complete in late July 2010, preliminary findings include:

- There is concern at the significant inconsistencies across state agencies including varied levels of focus, interest and ability in the extension, adoption and capacity building fields
- There is variance in perception and understanding of adoption, extension, practice change, etc terminology and intent as well as their application in the overall sector.
- While there is acceptance in the sector of responsibility for R&D process and management, there is less acceptance of the role and responsibility to ensure or facilitate the uptake or adoption of R&D outputs to achieve agreed outcomes
- While it is apparent and recognised that programs are essential to build human capacity at individual industry level, there appears to be limited strategic engagement in such overarching strategic programs. So it would appear that greater collaboration in capacity building is essential particularly regarding how best to secure younger talent.
- There appears to be an underinvestment in evaluation of the social elements of the triple bottom line.
- It is apparent that there is a need for greater collaborative ventures across the sector to address duplication and differing levels of skills
- It is also apparent that there is need for stronger delivery mechanisms, reduction of duplication in this area, a focus on engaging with intermediary users and a role for the agribusiness sector to effectively engage with and act as a conduit to end user farmers.
- Overall rigour in monitoring and evaluation and reporting is generally lacking
- More support of researchers and other workers to communicate their R&D outputs is also needed
- Greater co-operation through some form of re-born CVCB or Centre of Excellence is sought.

While a project undertaken for LWA was presented about the time of its demise in June 2009, the interviews with agribusiness advisers regarding a potential engagement strategy with LWA is instructive:

- The agribusiness sector has an interest in delivering NRM focussed R&D findings to their clients
- Strong on-farm relevance is needed for this to be meaningful
- Research work can be too short term – particularly for NRM issues and trials – 10-year horizons are more appropriate
- Plain speaking about R&D outcomes, their relevance and application is needed to facilitate this process so farmers and advisers 'understand' the implications of R&D outcomes to them
- Key forms of priority engagement include FarmPlus, personal 1:1 advisor relationships with farmers and with researchers, web and email, and input to and with commonly used decision support packages. It was proposed to 'add an NRM layer to these decision support and advisory packages'
- An easy to read/understand/apply format for delivery of R&D outcomes is critical
- A high level 'think tank' is important to address these and NRM issues at a policy and industry level so senior decision makers can 'get their minds around the issues'
- Advisers can act as a highly relevant 'feedback mechanism' to ensure R&D work focuses on real life and needed issues rather than generalist or 'personal interests' of researchers or research administrators

- Work in progress yielding interim results is an important area for attention as farmers generally make decisions based on interim data rather than waiting for completed / validated outcomes to be formally released in reports. It was noted that in some instances scientists reporting their R&D findings to scientific peers rather than to beneficiaries / levy payers took precedence.
- Some form of payment to advisers to promote relevant information that clients would not normally request or pay fee-for-service for (such as on NRM or bio-diversity issues) gives an accountable method of ensuring information on community good issues is directly conveyed to farmers
- A 10-Steps to Engagement Project was also proposed as an outcome of this project to facilitate formal investigation of these issues through a pilot program.

There is commonality with these findings and work undertaken for GRDC (2007) and CRDC (2010) both un-published. Similarly there is commonality with work undertaken by QualDATA for the Salinity CRC in 2006 that is also unpublished.

3. What does all this mean?

These issues can be summarised as:

- The ability of publically funded R&D organisations to undertake their R&D process based activities is rarely questioned by survey respondents so can be considered to be 'largely meeting needs'
- Their ability to create relevant outcomes in relevant formats for delivery to farmers and to agribusiness advisers – a key and well acknowledged information conduit and synthesiser – is regularly questioned. This function therefore warrants attention.
- It is apparent that current engagement of RDCs in all elements of the current Extension, Adoption and Practice Change supply chain is variable as is the effectiveness of current 'delivery processes' to end users and beneficiaries
- It is clear that many in the national RD&E sector are unsure of their role in delivering outcomes to end users – whilst others are unsure of the processes to be used and how to go about doing so
- The key cultural drivers of engagement between the publically funded and business sectors need strong attention as this is a key impediment
- It is clear that the evaluation processes could improve, particularly the social indicators that demonstrate effective delivery, adoption and practice change.

As an alternative to 'more of the same' it is the author's view that:

- The Extension, Adoption and Practice Change process is better separated from the R&D process and managed by specialists skilled in these disciplines – rather than by R&D process specialists
- Evaluation and Reporting is another area requiring attention, particularly the social elements, so that effectiveness can be measured and reported effectively on triple bottom line principles
- Greater consistency in this process would also be valuable
- However it would be unwise to divorce these functions from the R&D process so some mechanism of cross over and integrated collaboration is the preferred option
- Engagement of the publically funded and agribusiness sectors are crucial going forwards
- Some form of think tank at senior 'action levels' to facilitate this change is crucial to ensure it happens – to create strong accountability for outcomes
- The motivation to facilitate engagement and to achieve practice change in potential beneficiaries is critical. Short and long term Key Performance Indicators and awareness of key drivers and suitable process are key elements
- A focus on Outcomes, Adoption and Practice Change is a key area of attention.

4. How would this be achieved?

Recommendations are proposed:

Core RDC model is valuable to manage R&D
The R&D process, apart from the strong reliance on insecure state government agencies, as managed by the RDCs appears broadly satisfactory. However it is apparent that greater consultation with a wider group of industry personnel would be valuable. This includes the end user segments and agribusiness segments to ensure local nuances are considered in the establishment of priorities for R&D and during the R&D process. Focussed consultation would be valuable to create a focus on Outcomes, Adoption and Practice Change.

More robust monitoring, evaluation and reporting along common themes in the sector appear to be an important area of fine tuning.

Recommendation
That RDCs continue as the core R&D model with a responsibility based on managing industry based R&D process – in other words the R&D is managed through a process based system that meets the needs of 'beneficiary industry' (as opposed to personal interests) and of the wider community.

Separation of R&D from Extension, Practice Change and Adoption – and from Marketing
It is apparent that the functions of 'delivery and uptake' of the R&D outcomes is far more problematic. This is acknowledged by end user levy payers and by advisers. While this is less acknowledged by most RDCs, CRCs and it is still generally acknowledged to be an issue for attention. The CRDDC recognises the overall problematic nature of this issue as defined in its submission to the PC. QualDATA reports this in its survey findings.

The best methods to address this issue can considered in relation to how the national and international agribusiness sectors focuses on creation of products and services of direct benefit to clients – resulting in the generation of income and profits. The elements of this process are 'product development' and 'sales' and 'marketing'. Some marketing is promotion whilst some is relationship marketing.

This process occurs effectively due to the acknowledged specialisation of the key personnel in these disciplines who drive their responsibilities.

Accordingly it is proposed that:

- The RDC model is broken into horizontal and vertical streams
- The horizontal streams are functional – first the R&D process; second the Extension, Adoption and Practice Change function with a further horizontal stream of marketing that is unrelated to Extension, Adoption and Practice Change although linked through vertical streams so as to be holistic.
- The vertical steams are sector based – eg. grains, meat and livestock, multi-industry (RIRDC), etc – and they focus simply on the R&D process. The R&D process however focuses on agreed deliverable outcomes – that are adoptable by beneficiaries.
- Specialist personnel staff the horizontal streams to manage those specialist functions
- They interact with R&D management personnel to monitor the development of R&D outcomes that are to translate into Extension, Adoption and Practice Change and Marketing products, services and activities
- They also ensure the input of their client groups into the R&D priority setting processes of the RDCs. This creates a feedback loop back into R&D process from a strategic outcomes perspective.
- Some form of think tank process and accountability by the Sector based senior personnel is required to ensure relevant outcomes are created and process is robust. The accountability would be based largely on the development of products and services that cause practice change in end users. None of this negates pure, applied or blue-sky R&D – it gives this context and purpose. It also strengthens the need for longer term R&D planning horizons than the current 1-3 year horizons.
- The extent to which the R&D process is based on 'more aggregated RDCs that at present' (eg a broadacre RDC incorporating grains and cotton, a meat and livestock RDC that incorporates beef, sheep and wool and goats, etc) has not been considered in this paper
- The notion that bigger is better and creates administrative savings is not necessarily so. The focus of my proposition is 'lean and highly responsive to industry needs' with priorities for attention based on

bona-fide industry input from the top 20% of producers and others in the supply or value chain so their needs and those of other segments are met.

- To secure the engagement of the private sector, some form of buy-in by the agribusiness sector and NRM sector is proposed. It is noted that levy payers already have buy-in as does the government – however the buy-in of the agribusiness and NRM sectors gives them roles and responsibilities. The methods and rationale of the buy-in process is not yet fully formed in this paper
- A strong monitoring and evaluation function will be needed to ensure reporting; continuous improvement and client engagement can be effectively monitored and managed.

Recommendation
That one overarching sector focused collaborative RDC (an Adoption Corporation) takes responsibility for the practice change function, through its single defined focus on the demonstrated adoption of new technologies created by the RDCs (this includes the capacity building functions).

Recommendation
This Adoption Corporation has buy-in from the wider agribusiness sector as they are a significant delivery mechanism and from the NRM sector as they are an incidental delivery mechanism.

Recommendation
That an aligned Marketing Corporation is also created that focuses on marketing of products created from R&D and related functions that benefit the wider agri-foods and fibre sectors and Australian community.

Recommendation
That these three elements are inextricably linked through sector based steams that flow through them all. For example, if meat and livestock R&D occurs under the RDC model; they then ought to collaborate with meat and livestock specialist adoption personnel in the Adoption Corporation and as required collaborate with marketing specialists in the Marketing Corporation. This has similar characteristics to the current MLA structure with its current marketing division – by adding an adoption division with specialist personnel the varied functions remain specialised yet linked.

In summary, the focus of this paper is to separate yet link the R&D process; the Extension, Adoption and Practice Change process and the Marketing process. It is a crucial element to secure true buy-in from the top 20% of the industry (or at the very least regular defined input) and also from the value chain in recognition that we are dealing with the agri-foods and fibre industries rather than production only.

The notion is that specialists with real life experience in business manage these processes on behalf of industry recognising both short and longer term (10-years) horizons.

The concept of buy-in extends to the agribusiness and agribusiness adviser sectors to ensure a strong focus on R&D outcome adoption leading to practice change. The emphasis of this is on those parts of the industry that make a difference – hence the notion of the top 20% that have real impact – then extending to other beneficiaries based on those learnings. The monitoring, evaluation and reporting must be robust to show defensible triple bottom line Impact and support continuous improvement.

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