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THE UNIVERSITY OF MELBOURNE

24 June 2010

RDC Productivity Inquiry
Productivity Commission
LB2 Collins Street East
Melbourne VIC 8003

Dear Commissioners

Re: Submission to the Productivity Commission Inquiry into the Australian Government Research and Development Corporations Model

Thank you for the opportunity to make a submission to this inquiry. The University of Melbourne, has served the Australian primary industry sector for over 100 years with its Faculty of Agriculture (now the Melbourne School of Land and Environment) established in 1906. In addition, our Faculties of Science and Veterinary Science also make important contributions to research, education, workforce and skills development supporting primary industries. This submission has been prepared in consultation with senior staff members of the above Faculties and our leading rural industries researchers, many of whom are directly supported by RDC funding.

The University of Melbourne undertakes a diverse range of rural research. Funding has been received from the Australian Egg Corporation Ltd, Australian Pork Ltd, Dairy Australia, Fisheries RDC, Forest and Wood Products Australia, Grains RDC, Rural Industries RDC, Grape and Wine RDC and Meat and Livestock Australia. Furthermore several PhD students are funded directly by GRDC and GWRDC. The total funds received in 2009 were $5.5 million, with in-kind contributions of staff salaries, and infrastructure and equipment significantly exceeding this amount. Thus we are keenly interested in the outcome of the review. Below we address several of the Terms of Reference.

We also wish to note the outstanding context of the inquiry. In light of various reviews of the challenges that climate variability is producing (IPCC, Stern, Garnaut), sustainable food production and security is emerging as a critical area for the future. Whatever the outcome of this inquiry, it must be capable of addressing these present and future needs of society.

We thank the Commission for the opportunity to reflect our views on a matter of considerable strategic importance to Australia and to this University. Should you require further information, please feel free to contact Dr Simon Kerr, 03 8344 5006, kers@unimelb.edu.au.

Yours sincerely

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ToR 1: examine the appropriate level of, and balance between public and private investment in rural R&D;

On the issue of appropriate balance between private and public sector investment, our comments are mostly directed toward the public investment position. We consider it essential to maintain public investment in rural R&D and base this on a number of assumptions, including the lack of a significant private company sector carrying out R&D within Australia.

First, the issue of whether the private sector will invest sufficiently in critical research is highly problematic. One issue is the time lag between investment and return. In rural industries, where levies are often the mechanism for private sector research investment, it is assumed that farmers will agree to the most beneficial levy to fund critical research needs. However, in our view, the time lag between the investment and return on investment is too long to sufficiently incentivise levy payers. Therefore without significant public investment, long term research needs will be underinvested through this mechanism.

We also believe a very significant level of government investment is essential to ensure public ownership of research results that may be in the public interest. There is a risk that research of considerable public interest could be embargoed by research bodies that see themselves as purely an organ of the rural industry, not of the Australian public. Indeed we believe that publication of results, after any necessary steps are taken to protect intellectual property, should be a prerequisite of obtaining matching government funding.

Nascent and early-developing industries, or industries which are not yet competitive on the global market, should receive greater government funding, perhaps with a justifiable bias towards the development end of the R&D spectrum. The current model does not necessarily foster research where the greatest opportunities for growth exist.

We are concerned that public investment could be restricted if significant private benefit results. We are not convinced that some private benefit from public investment is necessarily inefficient or even undesirable. Private benefit gained by rural industries from public investment can also be considered a public good. Food production is certainly a public good, not just a private benefit. We suggest that public investment needs to take a wide view of what constitutes public good in rural industries, and that private benefit ought not to result in significantly limiting public funding.

In addition, we argue that private benefit needs to be high due to the lag time in returns. Thirty percent of farmers regularly vote not to levy at all, indicating some reluctance of private investors to invest in research. The legitimacy of the levy system will only be maintained if there is sufficient return. This, in essence, means reasonable private benefit from research.

We are also concerned about the need for a balanced portfolio of investment between fundamental and applied research. The exact balance will be influenced by the balance in the innovation sector overall, but we argue there is a strong case to be made for RDC investment to include some fundamental component. This is primarily a role for public

investment, given the time horizons for fundamental research in producing applied knowledge.

Commonwealth financial investment in rural research is crucial; without it research infrastructure, staff and training could not be maintained. RDCs fund research that would not be picked up by other funding bodies (ARC) or by CSIRO or by the private sector. Indeed there are few Australian agricultural companies that invest significantly in Research and Development, or appreciably fund it. Given the challenges of food security under changing climate futures, the vulnerability of rural communities and the current shortages of skilled workers in the rural sector, any disinvestment by public funders will have significant adverse impacts.

ToR 2: consider the effectiveness of the current RDC model in improving competitiveness and productivity in the agriculture, fisheries and forestry industries through research and development;

We view the current RDC model as productive, in that RDCs generally produce a high rate of return on investment (in one analysis, a rate of $11 return for every $1 invested). This is a competitive return in most investment environments. It has supported a competitive rural economy in an increasingly challenging external environment. The balance of expenditure in their respective investment portfolios between basic/strategic/applied is something that needs to be reviewed and consistent with investments made from other Government agencies.

ToR 3: examine the appropriateness of current funding levels and arrangements for agricultural research and development, particularly levy arrangements, and Commonwealth matching and other financial contributions to agriculture, fisheries and forestry RDCs;

Given the significance of agriculture and other rural industries to Australia's economic wellbeing and long term security, we are of the view that levels of investment are too low. We are conscious that this is the rallying cry of many sectors in the economy, but the challenges raised under TOR 1 above, along with the changing nature of risk to society, place rural industries in a unique position within the innovation sector. There are few other significant sources of funding for the rural research sector.

We are generally comfortable with the overall structure of the RDC system. However, we do see some significant areas for improvement.

We are unclear about the increasing role of marketing within many RDCs. This is not something that has been done historically and we consider this area needs closer guidance and scrutiny to determine the value it provides. Likewise, similar concerns arise over extension work and the roles of State DPIs and CSIRO in this activity. We are not suggesting that these should not be part of the RDC role, but rather that the balance between investment in research and extension work needs to be examined.

In terms of investment strategies, we wish to see increased number of competitive calls with longer term strategies. There is a significant need to keep some stability in strategic research direction, and we recognise that Government's are not always able to maintain a long term direction for research given shorter term frameworks of the political system. In addition, the

private sector is often limited in its capacity to tackle long term problems where significant investment is required. In our direct experience, this lack of longer term research strategic direction has resulted in the loss of capacity, where highly skilled researchers have left the country and, in some cases, their research careers. These cases are directly related to the difficulty in maintaining continuity of research funding.

Another related issue is that some industries are overly dependent on the in-kind contributions of universities that the universities are no longer able to provide. An example is the Rural Industries RDC Horse R&D Program where multiple small, short-term projects are being only partially supported. This will not enable key groups with appropriate expertise to develop and is not resulting in longer term funding of quality proposals.

In addition to this problem with investment in human capital, there has also been a progressive decline in investment in physical capital. While some very large infrastructure has been co-funded, it has become more difficult to maintain facilities that might have longer term use over a number of projects, such as animal holding facilities. A scheme dedicated to maintaining current facilities and developing new ones would also be a wise investment in future capacity.

Finally, it has become increasingly unclear whether research funded by RDCs is eligible for block infrastructure support. This Commonwealth funding provides essential infrastructure support for universities and is claimed on Australian Competitive Grant research income. RDCs need to register their funding programs on the Australian Competitive Grant Register. Without this, universities cannot claim infrastructure block support and therefore are forced to carry all the overhead costs of projects. This uncertainty is problematic because it can result in the real costs of projects not being budgeted, and our experience is that the research and development bodies are also confused and find it difficult to understand the effect that this may have on project budgets. It should be noted that the current level of infrastructure support is inadequate to maintain current facilities and fully support the research being conducted. We encourage the Commission to consider ways to ensure that RDC funding is registered on the Australian Competitive Grants Register.

ToR 4: consider any impediments to the efficient and effective functioning of the RDC model and identify any scope for improvements, including in respect to governance, management and any administrative duplication;

An important issue concerns the governance of RDCs. Given our recommendation for increased investment in rural research and innovation, we believe the Commonwealth needs to play a more active role in setting a joint research agenda. We emphasis the *joint* nature of this agenda, but believe the Commonwealth can be more directive in setting the research agenda with RDCs. In principle, the Commonwealth has the capacity to respond to strategic concerns where market feedback fails.

One practical but valuable improvement is the need to reduce the transaction costs around the application and award process, particularly in relation to the application and duplication of contract templates. The University of Melbourne expends significant resources supporting the often protracted application and contracting processes that are different for each RDC.

There is significant potential here for rationalisation and we strongly encourage the Commission to consider ways to improve this situation.

The application stage is complicated by the different processes, templates and even software used by RDCs. This requires considerable duplication of resources as each RDC requires its own customised application process. Chief investigators and research office staff have to become familiar with a wide range of processes. Given that the underlying logic of an application process is more or less standard across the sector, there is no fundamental reason that the application process, software and templates cannot be shared across the sector as well. We strongly encourage the Commission to consider opportunities for efficiency gains by mandating a more streamlined application process.

The process of preliminary applications followed by full applications for funding works well. However, we have concerns about the propensity of some programs (for example, the RIRDC Horse program) to call for full proposals and then reject the application based on information that was supplied in the preliminary proposal. This is a significant cost to the University and is particularly problematic when this program is unable to fully support projects anyway given its extremely limited budget. RDCs need to reduce these transactions costs as much as possible.

In relation to the finalisation of projects once approved, this is often a significant source of frustration between RDC program managers and researchers. Although there is usually clear agreement on the project scope, this is often not the case with the legal agreements. A generic RDC application and contract template used by all RDCs would be most welcome by research institutions. Any such template agreements should be developed in consultation with the research sector. We note that many of the RDCs do have templates that have been developed by (expensive) external legal counsel. In our experience these legal firms have a poor understanding of the research environment and include legal terms that are problematic. Because of the expense involved in referring such issues back to external lawyers, legal agreements offer suffer protracted negotiations (although our goal has been to expedite this over the last two years).

We offer some examples of particular areas of common concern with RDC legal agreements. For some RDC funders, we have been faced with legal terms relating to publication, moral rights and commercialisation that are counter to the public-spirited purpose of our university and are potentially in conflict with our responsibilities as supervisors of research students. Whilst The University of Melbourne attempts to be as pragmatic as possible, we are at the stage, for at least one RDC funder, of questioning whether it is feasible for PhD students to be supported.

The current approach of the rural industry funding bodies, based on development of five year plans which then guide investment, is valid in addressing shorter term issues for industries. However, it is our experience that this results in many of the RDCs being interested only in examining limited research questions under the direction of the industry peak councils, and to a large extent much of the research is effectively, or actually, commissioned from specific research teams and organisations. While this approach certainly

addresses the current issues that the industries or specific program managers can identify, it diminishes opportunities for the best researchers to make novel, ground breaking discoveries. A significant proportion of the available funding should be dedicated to fully competitive, peer reviewed and assessed project research, just as with ARC and NHMRC funds, to enable us to utilise the very best ideas and address the longer term issues of these industries. The allocation of funding to such openly competitive, peer assessed research projects should be a condition of provision of matching government funding (We comment further on the capacity of RDCs to carry out peer review under the next ToR).

One difficulty with the approach of RDCs is a focus on very frequent reporting on research projects. In most projects annual reports should be sufficient. The result of such frequent reporting can be a tendency for program managers to micro-manage research projects. This is inefficient for both the RDCs and the research organisations.

We also raise an important question over the number of Boards with which the Commonwealth must interact. Given that there is half a billion dollars spent each year on 15 boards, we consider this number ought to be examined. Boards reflect the partnership between the public and private sector for their sector. We wish to ensure that RDCs do not just represent industry to Government. The effective functioning of RDCs relies on a careful balance between public long term research imperatives and the needs of partner funders. This needs to be reflected in the interaction between Government and industry.

ToR 5: consider the extent to which the agriculture, fisheries and forestry industries differ from other sectors of the economy with regard to research and development; how the current RDC model compares and interacts with other research and development arrangements, including the university sector, cooperative research centres and other providers; and whether there are other models which could address policy objectives more effectively;

The agriculture, forestry and fisheries sector is characterised by the non-excludability of the benefits of the rural sector. There is insufficient investment by the private sector because they can't capture all the benefits and this can produce market failure. Investment and development in plant and animal breeding require lengthy time lines, and we are of the firm view that without significant and stable public investment the rural sector will not receive the strategic and long term research it requires. Furthermore, if left solely to the private sector we are unlikely to deliver breeding programs of relevance to Australian agriculture as we are a minor participant in the global market.

Rural R&D investment by RDCs has a critical role in workforce development of current and future generations of primary industries workers. Australian universities provide degree level training in a range of relevant areas. This is one of the most important forms of rural industry extension. Universities therefore need skilled academics who can undertake advanced research as well as educate. This means that students are exposed to the latest ideas and practices forming the foundation for increased innovation and productivity once they leave university. The university academic community therefore also requires ongoing research programmatic funding to support researchers who educate the future workforce. Given the RDC research is often very applied, there are few alternative funding sources. For example, the ARC primarily funds fundamentally oriented research. In other words, as well

as directly providing funding for research, RDCs are also supporting primary industry workforce and research capacity building. Without stable and long term investment in capacity building, Australia will lack not only critical skill shortages in the rural sector, but critical research and training capacity. Private investment in Australia has not been able to meet this challenge and is unlikely to do so in the foreseeable future.

RDCs also play an important role in training university postgraduate students. Participation in RDC projects by students helps bring in new ideas and bridge the country-city and fundamental-applied divides. Given the need for strengthening the rural economy, we strongly endorse the role of RDCs in funding students.

We consider that co-investment between RDCs and the ARC is a useful investment strategy that has worked well. Any future recommendation for such co-investment is welcome, but because of the particular nature of rural research with its extended research time lines, such investment needs longer time frames than have been used to date.

The internal capacity of investors (i.e., research experience, knowledge and skills) is important in effective research investment. Although there are exceptions, in our view RDCs often do not have the internal capacity to handle peer review of research applications. This results in a less-than-robust application assessment process. Secondments between RDCs and universities would help develop and maintain these skills. It would enable RDC staff to stay up-to-date with latest research trends and methods, and allow a greater cross fertilisation between RDCs and universities.

Universities make a unique contribution to rural research and development as university researchers are at the cutting edge of knowledge advancement and usually have excellent international networks. There is wide sharing of intellectual knowledge within the international science community, something that is critical to the effectiveness of the science process. Although Australian university scientists may contribute only about 2% of the world's knowledge, this gains them 'a seat at the table' and thus access to the other 98% of knowledge generated overseas. Such access to knowledge is crucial to advances in research, including rural research.

Finally, we recognize that RDCs can provide long term support for maintaining core expertise within groups and organizations that meet industry needs, so long as they manage their finances to provide some continuity (it appears, for example, that Horticulture Australia Limited has recently suspended funding for the next 3 years in some areas of research, which puts university and government expertise at risk). This support is not possible through the ARC or other mechanisms.

ToR 6: examine the extent to which RDCs provide an appropriate balance between projects that provide benefits to specific industries versus broader public interests including examining interactions and potential overlaps across governments and programs, such as mitigating and adapting to climate change; managing the natural resource base; understanding and responding better to markets and consumers; food security, and managing biosecurity threats;

The RDCs provide significant direct and indirect benefits to their specific industries, consistent with their governance and funding structures. We do not believe that there are any serious overlaps within and across sectors. However, there is clearly a significant gap in the RDC model with respect to the cross-sectoral areas of activity outlined in the ToR, all of which are critical to the long-term sustainability of our agricultural enterprises. In these areas, and particularly for the rapidly expanding and increasingly important climate change space, no single entity has the mandate or authority to invest significantly. The National Research Development and Extension Framework is acutely aware of this issue, as it looks to implement the seven cross-sectoral strategies that are in development or approved (i.e., the National Climate Change Research Strategy for Primary Industries (CCRSPI) – currently hosted by the University of Melbourne). In the absence of critical new funding and an entity to manage those funds, we believe that the only way to improve the efficiency of R&D investments is through enhanced communication and co-ordination activities (such as CCRSPI) which encourage investment by RDCs in a cross sectoral fashion. While CCRSPI has (and other such initiatives will) achieved significant gains in national co-ordination, much more could be done with new funding and the authority to invest. We do not believe this should come at the expense of current levels of government funding to the RDCs.

RDCs therefore play a crucial role in dealing with cross-sectoral long term needs and long term public interest needs. Given the rapid development of funding programmes and collaborative ventures around climate change mitigation in particular, it is important to ensure there is coordination between these various groups and programmes. We also believe that the RDCs need to take a more proactive and coordinated approach to the integration and implementation of the new 'omics (genomics /transcriptomics /metabolomics /phenomics) technologies and more effectively partner with other Government investments in this space, such as the newly established NCRIS infrastructure. By jointly investing in developing these databases there would be considerable efficiency gains and the outcomes of the research projects funded would be considerably accelerated.

ToR 7: examine whether the current levy arrangements address free rider concerns effectively and whether all industry participants are receiving appropriate benefits from their levy contributions.

We have no further comments.

We thank the Commission for the opportunity to pass on our comments and trust that they will be of interest to the Commission.