

Mr Peter Reading
MANAGING DIRECTOR

The Secretary
Senate Standing Committee on Rural Regional Affairs and Transport
PO Box 6100
Parliament House
Canberra ACT 2600

17 March, 2008

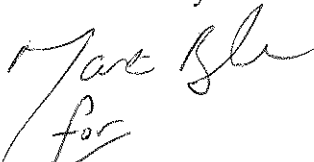
Dear Secretary

Thank you for your letter and invitation to the Grains Research and Development Corporation (GRDC) to make a submission to the "Inquiry into Climate Change and the Australian Agricultural Sector". Our submission is enclosed.

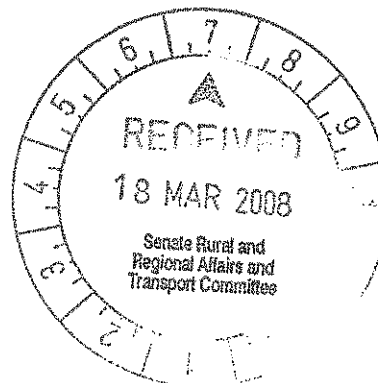
The GRDC is a significant investor in climate variability and climate change especially through the Managing Climate Variability Program. We have also partnered in the development of the Climate Change Research Strategy for Primary Industries.

If you have any specific questions in relation to the submission contact the corporation's Manager for Agronomy Soil and Environment, Dr Martin Blumenthal on 02 6166 4500.

Yours sincerely



PETER READING
Managing Director



SENATE STANDING COMMITTEE ON RURAL AND REGIONAL AFFAIRS AND TRANSPORT

CLIMATE CHANGE AND THE AUSTRALIAN AGRICULTURE SECTOR

INTRODUCTION

The Grains Research and Development Corporation is a significant investor in assisting the grains industry to adapt to and mitigate the effects of climate change. Since 2001 the GRDC has committed \$26.7 million to investments in 70 projects that address climate. These projects have included the development of an understanding of the drivers of climate variability and change, the development of crop germplasm and farm management practices that assist growers to adapt to variability and change, and approaches to mitigate greenhouse emissions from grain farms. The GRDC has undertaken this work in partnership with other investors and a range of research partners including CSIRO, state agencies, universities and grain grower groups. Breeding for tolerance or avoidance of climate constraints and improved seasonal forecasts and tactical risk management approaches remain the most effective way for the industry and individual growers to adapt to climate change.

The grains industry has a good understanding of current knowledge on the likely future climate and its implications for the industry and grain growers across Australia's agro-ecological zones. However, this current knowledge is imperfect with high levels of uncertainty about the changes that are likely to take place and the impacts of these changes on the industry. There is a strong need for a national strategy to assist agricultural industries to adapt to climate change. To this end the GRDC is participating in the development of "A Climate Change Research Strategy for Primary Industries (CCRSPI). The GRDC is a R,D & E investor and not a policy making organisation. It is therefore not in a good position to comment on the adequacy of existing drought assistance measures. Suffice to say the GRDC has been investing in R&D to identify better seasonal forecasting tools and in approaches to use these tools to minimise the impacts of climate risk.

ADDRESSING THE TERMS OF REFERENCE

- i) the scientific evidence available on the likely future climate of Australia's key agricultural production zones, and its implications for current farm enterprises and possible future industries;*

Current levels of understanding of climate variability are of marginal value for individual growers to make decisions in their farm businesses. The ENSO/SOI models have the strongest skill with 58% of variability explained by this model. This translates to a benefit of \$8/ha with perfect use of this skill in the central-west of NSW (Crean, 2006). Some have argued that the use of some forecasts are actually unhelpful (Ansell, 2004). Climate change projections are even less reliable. CO₂ is most certainly increasing, temperatures are increasing slightly (1°C over the next 30 years) and rainfall will change to a variable extent (probably increase in northern Australia and probably decrease in south-west Australia).

The GRDC has been the major investment partner in the Managing Climate Variability Program (MCVP). This program has had an emphasis on the development of better forecasting tools to allow grain growers (and others) to better manage the risks associated with within season climate variability. This has included investment in the development and adaptation of climate models for use in agricultural decision making and the development and extension of decision support tools to assist growers in decision making. MCVP2 will have a strong investment in understanding the regional drivers of climate with greater emphasis on global circulation models rather than statistical forecast which have reached skill limits. The management of within season variability will remain the main means by which grain growers adapt to climate change.

GRDC has either commissioned or benefited from the work of others in the downscaling of CSIRO climate change projects to a scale where regional decision making can be informed. Examples of this are the work of Asseng (2008) and Foster (2007) in WA and Rayenga and others (2001) in SE Australia.

Surveys show that one half of Australian grain growers take into account seasonal climate forecasts in farm management. Increasingly growers are delaying large investments in fertiliser as they wait to see how the season pans out. Rather than putting all their fertiliser on up front at seeding. Playing the season is in effect a practical adaptation to climate change. Compared to other industries there is not a lot of sunk infrastructure in the grains industry. At the farm level machinery depreciates and can be replaced appropriately in response to climate change. At the receipt, storage and transport levels grains infrastructure is increasingly flexible with road rather than rail transport and temporary storages rather than concrete silo systems all of which are highly adaptable.

ii) the need for a national strategy to assist Australian agricultural industries to adapt to climate change;

The GRDC fully supports the need for a strategy to assist Australian agricultural industries and the grains industry in particular to adapt to climate change. To this end the GRDC is participating in the development of "A National Climate Change Research Strategy for Primary Industries" (CCRSPI). The strategy is a joint initiative of all the Rural Research and Development Corporations, all State and Territory governments; the Australian Department of Agriculture, Fisheries and Forestry; and the CSIRO. The chair of the CCRSPI Joint Steering Committee, Michael Robinson has made a submission to the senate committee on behalf of all CCRSPI partners. The GRDC sees many common issues between industries and across jurisdictions in the development of better forecasts of climate variability and change and the development of consistent methodologies for measuring the life cycle of energy flows and greenhouse emissions in the primary industries sector.

iii) the adequacy of existing drought assistance and exceptional circumstances programs to cope with long- term climate changes

Drought and a variable climate have always been part of the Australian agricultural landscape. The GRDCs investment especially through the Managing Climate

Variability Program have sought to development better within season climate forecasts and climate variability risk management approaches. As the climate changes, these approaches will become even more important. Grain growers ability to make appropriate management decisions season-by-season is the most effective way for them to adapt to climate change. In the longer term, more water use efficient varieties and farm practices will assist growers to adapt. Ultimately in the 30 to 50 year time frame some significant adjustments to land use may need to take place in the most impacted regions.

REFERENCES

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Ansell, K. 2004. Cloud over forecasts. Just what are they worth? *Groundcover* April 2004 p. 16-17.

Crean, J. 2006. Applying seasonal climate forecasting for profitable and sustainable resource use. Milestone Report to the Managing Climate Variability Program of Land and Water Australia.