

farm institute insights

Australian Farm Institute's quarterly newsletter



Australian
Farm Institute

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3 FEATURE ARTICLE

Is it drought or climate change?

After yet another poor winter crop season, farmers in southern Australia are questioning whether the recent run of poor seasons is evidence of climate change, or simply a repeat of severe droughts such as have occurred in the past. In this edition of *Farm Institute Insights*, the question is addressed in two articles.



The first is an article by Associate Professor Stewart Franks of the University of Newcastle. His paper provides an assessment of available historical information about Australian climatic variability. Based on this, he concludes, 'The simple answer is that there is no direct evidence that change in atmospheric CO₂ concentration over recent decades has had any significant effect on the severity or extent of the current drought, despite claims to the contrary. Like it or not, that is the current status of the science. Despite this, many would have us believe that the evidence that human-induced climate change is contributing to the current drought is irrefutable, and that the issue is proven and not debatable.'

In a second article, Dr Ian Smith, Principal Research Scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) notes that Associate Professor Franks' argument is plausible, 'but it should be stressed that climate scientists do not claim that the drought can be entirely blamed on elevated atmospheric CO₂. In fact, we tend to agree that the drought episode is most likely a similar "rerun" of past drought episodes, except that we tend to think it has been made more severe due to the effect of temperatures much higher than experienced in the past.'

Please note: due to the increased length of the feature article and the following on response, some usual features may be shorter than normal.

2 INSTITUTE ACTIVITIES

A brief overview of the Institute's key activities from August to October.

7 FOLLOWING ON – RESPONSE

In this edition of the newsletter, 'Following On' provides readers with the CSIRO's response to the main article by Associate Professor Stewart Franks.

9 FARM POLICY PROGRESS

A review of farm policy developments within Australia and internationally. In this edition: a look at what the election of Barack Obama will mean to agriculture, we additionally look at what the change in government in New Zealand will mean to the agricultural sector. Finally, we look at the way the financial crisis has affected commitment to climate change mitigation.

10 INSTITUTE RESEARCH AND EVENTS

A brief overview of the Institute's most recently completed Research Report – *Value in Value Chains: Collaborative Business Models and Farm Accreditation Systems Examined*.

11 FARM POLICY JOURNAL

The November 2008 edition of the *Farm Policy Journal* examines decisions confronting agriculture when responding to the development of an Australian ETS.



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INSTITUTE ACTIVITIES

Out and about

Recently the Institute's Executive Director, Mick Keogh, has spoken at:

- Tasmanian Farmers and Graziers Conference
- Rice Growers' Association Annual Conference in Coleambally
- Birchip Cropping Group – Breakfast
- Mallee Sustainable Farm Group Annual Meeting
- MLA Meat Profit Days in Gympie and Orange

Corporate Support

The Institute would like to welcome Victorian Farmers Federation and ANZ Banking Group Limited as their newest corporate members.

For more information on how you can support the Institute's work (individual and corporate opportunities available) please contact the Institute on (02) 9690 1388 or visit the website www.farminstitute.org.au

In the News

Climate change and the Federal Government's proposed Carbon Pollution Reduction Scheme have been key issues in the media this quarter. The Institute's Mick Keogh has contributed to the debate on this topic by providing comment to publications including *Rural Press* and ABC Rural Radio, with the Farm Institute's emissions trading modelling featuring in other outlets such as *Crikey*. He also contributed an opinion piece to the *Weekly Times*, published 14 November 2008.

The May *Farm Policy Journal*, 'new kids on the block – emerging agricultural exporters', was the subject of an article written by Matt Cawood of *Rural Press* entitled 'No room for complacency on exports'. The *Australian Financial Review* (25 October 2008) published a two page feature on the future outlook for food demand, based on the Australian Farm Institute report *The Implications for Australian Agriculture of Changing Demand for Animal Protein in Asia*. The feature identified the positive long-term outlook, especially for the Australian grain sector. Finally an interview with David Pearce, of the Centre for International Economics, who is in the process of finalising a research project on the economic effects of the emissions trading scheme for the Institute, was featured on ABC Radio's *Country Hour* program.

Call for Papers

The February 2009 edition of the *Farm Policy Journal* focuses on food security. The deadline for papers is 19 January 2009.

If you are interested in submitting a paper, please contact the Institute on (02) 9690 1388 or email info@farminstitute.org.au

Australian Farm Institute

Suite 73, 61 Marlborough Street
SURRY HILLS NSW 2010

AUSTRALIA

T: 61 2 9690 1388

F: 61 2 9699 7270

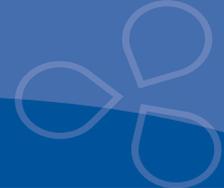
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Is human-induced climate change causing the current Australian drought?

Associate Professor Stewart Franks, University of Newcastle

Is the ongoing drought in the Murray-Darling Basin being made worse by human-induced climate change? This is obviously a very important question for farmers, scientists and policymakers, the answer to which may have a big impact on future production and policy decisions.

The simple answer is that there is no direct evidence that change in atmospheric CO₂ concentration over recent decades has had any significant effect on the severity or extent of the current drought, despite claims to the contrary. Like it or not, that is the current status of the science. Despite this, many would have us believe that the evidence that human-induced climate change is contributing to the current drought is irrefutable, and that the issue is proven and not debatable.

To understand this issue, it is first necessary to understand the relationship between El Niño and La Niña events and the Australian climate. The term El Niño refers to a period during which there is extensive warming of the central and eastern Pacific Ocean that leads to a major shift in weather patterns across the Pacific. In Australia (particularly eastern Australia), El Niño events are associated with sustained, strongly negative Southern Oscillation Index (SOI) values (the SOI being an index calculated from seasonal fluctuations in the air pressure difference between Tahiti and Darwin). El Niño events bring with them an increased probability of drought conditions. The opposite of El Niño is a La Niña event. La Niña is the term used to describe a period during which there is extensive cooling of the central and eastern Pacific Ocean. La Niña events are associated with strongly positive SOI values, and in Australia (particularly eastern Australia) with increased probability of wetter conditions.

The current drought was caused by an entirely natural climatic phenomenon – the 2002 El Niño event. This led to particularly low rainfalls across eastern Australia. The subsequent years have been characterised by either neutral or weak El Niño conditions. Significantly, neutral El Niño conditions are not sufficient to break a drought. Again in 2006, Australia experienced a return to El Niño conditions which further exacerbated the drought. What Australia has not experienced in recent years is a strong La Niña event.

Last year did finally see the occurrence of a La Niña event but it was relatively weak. It did produce a number of major storms in coastal areas and some useful rainfall in the Murray-Darling Basin and elsewhere. As a result, approximately half of NSW drought declared areas were removed from drought status (albeit into 'marginal' status), and the volume of water in Sydney's water storages doubled in the space of a few months.

This was the first rain-bearing La Niña since 1999 but proved insufficient to break the drought. In short, the drought was initiated by El Niño, protracted by further El Niño events and perhaps more importantly, has persisted in the absence of substantial La Niña events.

Despite the known causes of the drought, many have claimed that elevated atmospheric CO₂ concentrations, caused by increased man-made greenhouse gas emissions, are to blame. There have been arguments put forward to justify this claim, all eagerly adopted by various groups, but none of which has serious merit.

A key claim is that the multiple occurrences of El Niño events in a relatively short period of time are a sign of climate change. This claim is speculative at best. A recent analysis (Verdon & Franks 2006) showed that the 9 year absence of La Niña is not unusual. In fact long-term records



demonstrate alternating periods of 20–40 years where El Niño is dominant followed by similarly extended periods where La Niña dominates. Ominously, the data demonstrate that it is possible to go some 14–15 years without any La Niña events. The consequent drought would be devastating, but entirely natural.

Analysis of the actual flood and drought history in Australia also shows periods where floods and droughts alternate in dominating the climate record. These changes in climate between periods of flood and periods of drought perfectly mirror the changes in El Niño and La Niña dominance of climatic systems.

Perhaps of even greater intrigue is the fact that the periods of El Niño dominance are associated with periods of global warming whilst the periods of La Niña dominance appear associated with global cooling.

For example, the period between 1910 and 1945 was a period of marked global warming despite little change occurring in atmospheric CO₂ concentrations over that period. During that period, Australia experienced dominant El Niño events and frequent drought conditions.

The following period between 1945 and 1975 represented a major change in climate. Global temperatures were actually cooling despite increasing atmospheric CO₂, while Australia suffered frequent and strong La Niña events and major floods.

Since 1975, Australia has returned to a period dominated by frequent El Niño events and persistent drought, which has coincided with a period during which global temperatures have also been increasing.

The accumulated history of El Niño events and their impact on Australian climate indicates that we should expect to return to a period extending

for several decades which will be characterised by more frequent La Niña events and a wetter climate. Moreover, the data say that this change could be expected to occur at any time in the next ten or so years. Indeed, if Australia's climate did not eventually change back to a period dominated by La Niña and flood, then this may actually be much stronger evidence of the possible impact of man-made climate change than the current drought.

The observation that El Niño and La Niña events cluster on 20–40 year, multi-decadal timescales is therefore an important one. It demonstrates that Australia should always expect major changes as a function of normal natural climatic variability. When viewed in this light, the current drought is not obviously CO₂-induced, but is most likely to simply be a continuation of the fluctuations that have characterised the Australian climate for thousands of years.

A more recent and related proposal by some commentators is that higher temperatures, which some assume to be associated with increases in atmospheric CO₂, are leading to increased evaporation of available moisture, and therefore reduced runoff into water storages. While perhaps seeming to be logical, such a claim is in fact contrary to scientific knowledge.

The Australian Bureau of Meteorology acknowledges that rainfall from September 2001 until the present has not been the lowest ever recorded, however much has been made of the fact that, during this same period, consequent inflows of water to major watercourses and storages have been the lowest ever recorded. It has been claimed that increased evaporation as a consequence of higher temperatures explains why watercourse and storage inflows have been lower than should be anticipated, given available rainfall. Indeed, Dr. Wendy Craik, the Chief Executive of the Murray Darling-Basin Commission (MDBC)

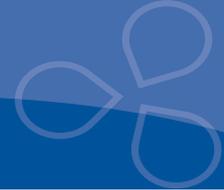
is reported as having stated that temperatures were warmer, leading to more evaporation and drier catchments (*Daily Telegraph*, 3 September 2008).

If the quotation is correct, it is somewhat disturbing to hear this statement being made by the head of the MDBC as it is completely at odds with the known physics of evaporation. Whilst it sounds intuitively correct, it is actually quite wrong.

When the soil surface contains relatively high amounts of moisture, a large portion of the sun's energy that strikes the earth's surface is absorbed in evaporation of that moisture, and consequently there is less heating of the soil surface, and near-earth air temperatures are cooler. When soil moisture content is low (as occurs during drought) nearly all of the solar energy that strikes the earth is available to heat the soil surface, resulting in a hotter earth surface, and an increase in near-earth air temperatures. Consequently, higher air temperatures are due to the lack of evaporation, not a cause of higher evaporation.

Cloud cover also has a major effect on air temperatures. During El Niño periods there is less rainfall and also less cloud cover. This has a major impact on the amount of the sun's energy reaching the land surface, hence temperatures increase during these periods. This effect on temperatures is far greater than the trivial increase in radiant energy that is caused by increased atmospheric CO₂.

These are known and accepted processes of environmental physics and are not contentious. They are ignored, presumably because they detract from the simplistic message some wish to convey that we should 'sign up' to the concept of 'dangerous human-induced climate change' and therefore the proposed solution which is a greenhouse emissions trading scheme. After all, the community is hardly likely to agree to the costs associated



with a reduction in greenhouse emissions, or the costs of climate change research unless the majority is convinced that increased atmospheric CO₂ levels are resulting in damaging changes to the Australian climate.

None of the above is to say that increased atmospheric CO₂ is not having *some* effect – global atmospheric CO₂ concentration has increased over recent decades and this increase is largely attributable to anthropogenic emissions. CO₂ is a radiatively-active gas and does lead to a minor increase in downward radiation by trapping infra-red radiation reflected back from the earth’s surface that would otherwise escape into space. However, there is no evidence that this effect is in any way significant, in comparison with naturally-varying cycles such as El Niño and La Niña that are the dominant reasons for rainfall and temperature variability in Australia.

It is actually well understood why inflows to watercourses and water storages are so low and why various ecosystems of the Murray-Darling are in crisis – the system is over-allocated and has experienced a growth in groundwater extraction, and in the number of farm dams preventing rainfall from becoming runoff. As a result, when a prolonged drought strikes, the system collapses. This is a man-made problem but not one that is attributable to atmospheric CO₂ concentrations.

It should be pointed out that one cannot and should not blame individual farmers for this. The problem has arisen due to a failure of planning, management and leadership from the relevant authorities whose job it is to manage these things. Perhaps these authorities should spend less time and resources developing complex computer models to help in their search for proof of human influence on climate, and instead put some serious resources into better managing Australian water resources.

Australian water resource managers are not alone in their desire to view CO₂-induced climate change as proven and contributing to the current drought. Numerous politicians, environmentalists and especially scientists have made spectacular leaps of faith in their adherence to the doctrine of human-induced climate change over recent years – too many to document here. However, the prize for the most literally fantastic claim on climate change must go to the Prime Minister, who has **guaranteed** that rainfall will decline over coming decades, based, one can only assume, on deficient climate models and bad advice.

Perhaps our leading climate authorities who have played such a prominent role in fomenting speculation about human-induced climate change on the basis of modelling results and who apparently adhere to the notion that climate is amenable to such precise and long-term prediction should also point out that these models cannot reproduce the observed multi-decadal variability of El Niño and La Niña in anything like a realistic manner.

Given the model’s inability to predict future El Niño and La Niña events (which are the biggest factors influencing future Australian climate) then claims that future climate changes can be predicted with any certainty are highly questionable, and should be regarded as advocacy, rather than scientific information that can be relied on.

It is not often appreciated that the academic argument between climate changes due to carbon dioxide emissions, and those that may be due to natural processes (in particular solar variability), has been raging for over 100 years. I argue that we are no nearer to resolving the issue today with the current scientific approaches.

Science in its purest sense is very easy to identify and define. Science is the act of developing a hypothesis about

how something works, designing an experiment that aims to test the hypothesis, and replacing the hypothesis should it be found to fail in the light of the experiment. In principle science is simple, but in practice it is hard. This though is no excuse for scientists and others to make statements of belief under the guise of science. A scientist’s opinion can be distinctly different from a scientist’s findings.

Above all, science is not about speculation and fear. Science is not about who can shout the loudest, or who can make the most emotive or persuasive movies. Science is certainly not about consensus. It is about experiments and direct evidence.

There remains no direct evidence that changes in atmospheric CO₂ concentrations are having an impact on the severity or duration of the current drought, nor is there any rational basis for predicting what rainfall different areas of Australia may experience in 30 years time. One just hopes that once the current infatuation with theories of human-induced climate change subsides, our leaders will recognise the need for an increased focus on the development of sensible and sustainable water management policies that will better enable struggling rural communities to weather the vagaries of both climatic and political extremes.

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Stewart Franks is a Hydroclimatologist and an Associate Professor at the University of Newcastle School of Engineering. He is currently President-Elect of the International Commission on the Coupled Land – Atmosphere System.



Using paleoclimate records to trace El Niño and La Niña events over 400 years

A major challenge in understanding climate is the relatively short periods over which reliable weather observations are available. In Australia, there are few temperature or rainfall records that extend back more than 100 years, and highly-reliable satellite temperature records only extend back to the late 1970s. This makes the study of long-term climatic variations quite difficult, especially in Australia which has a highly variable climate.

One way to overcome this limitation is to use paleoclimate data to re-construct records of climate over an extended period. For example, comparing tree-ring chronologies from regions along the north American pacific coast with growth patterns that can be observed in coral fossils found in the South Pacific ocean provides information about historic changes in ocean temperatures in both regions. This enables the reconstruction of long-term changes in the Pacific Decadal Oscillation (PDO)

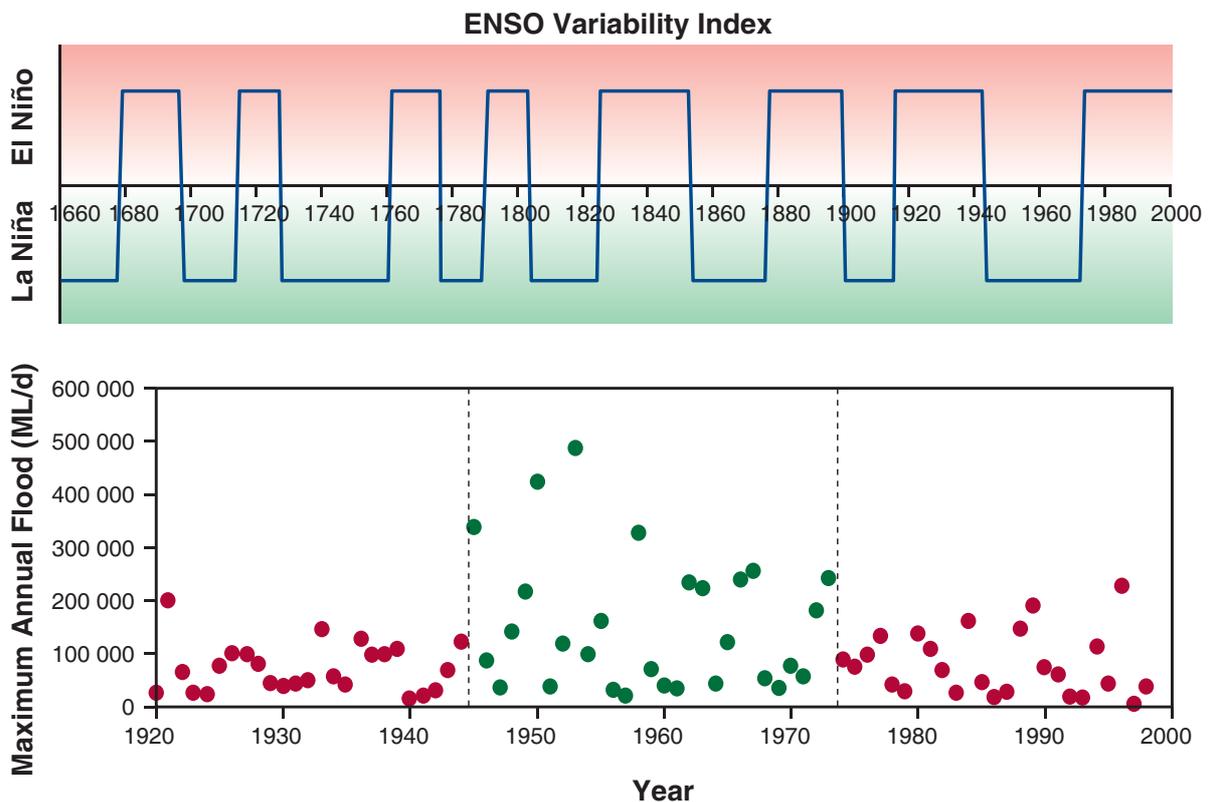
and the Inter-decadal Pacific Oscillation (IPO), which are climatic indexes which are linked to the El Niño Southern Oscillation (ENSO) phenomena.

A number of scientists have independently carried out such analyses, and a comparison of their results shows good consistency between them in relation to the historical periods they have identified during which changes occurred in the PDO and IPO. This, in turn, indicates periods during which either El Niño or La Niña events were likely to be more frequent.

The following figure uses this information to provide a reconstruction of climate indicators over the last four hundred years, and to identify periods during that time which were dominated by either La Niña or El Niño events. Note the La Niña-dominated period from the 1940s to the 1970s, which coincided with what now appears to be a historically wetter period in

Australia, and the period from the late 1970s to the present time which has been dominated by El Niño events, and coincides with a drier period. As can be observed, there appears to be nothing abnormal about the duration of the current period of El Niño dominance. The figure also highlights the difficulties associated with projecting longer-term changes in the Australian climate, given that reliable weather observations only extend back over approximately two cycles of this phenomena.

A historical review of flood events in northern NSW shows the higher frequency of major floods that occurred during the La Niña dominant period from the 1940s to the 1970s. This observation supports theories about the role of El Niño and La Niña events in the Australian climate, and also explains why recent Australian climatic conditions have been hotter and drier that the period from 1940 to 1980. 



Source: Verdon and Franks (2006).



Drought and climate change: debating the issues

Dr Ian Smith, Principal Research Scientist, CSIRO

In his contribution to the Australian Farm Institute’s quarterly newsletter, Stewart Franks raises a number of issues relating to the current drought and climate. A major point he makes is that there is no evidence that human-induced climate change is responsible for the current drought, and that it can be explained by natural long-term variability of the climate system. In particular, the current drought represents an El Niño dominated period in our history, which could be expected to end within the next few years.

This argument is plausible but it should be stressed that climate scientists do not claim that the drought can be entirely blamed on elevated atmospheric CO₂. In fact, we tend to agree that the drought episode is most likely a similar ‘rerun’ of past drought episodes, except that we tend to think it has been made more severe due to the effect of temperatures much higher than experienced in the past. Data shows that run-off during 2006/07 was the lowest in 117 years and that run-off this year will only be marginally better (Murray-Darling Basin Commission 2008). The attached graph (Figure 1) shows 7-year average maximum temperatures across the Murray-Darling Basin which illustrate how different recent conditions have been compared to the past 50 or so years. Stewart argues that the warmer temperatures are simply due to the fact that it has been drier. While this also sounds plausible, according to a study by one of Australia’s most respected climate scientists, Neville Nicholls (2004), ‘The warming has meant that the severity and impacts of the most recent drought have been exacerbated by enhanced evaporation and evapotranspiration.’

At this point it is worth noting that the National Climate Centre (NCC) has recently noted that: ‘In south-

eastern Australia (especially Victoria and Tasmania) the situation has worsened during 2008, with three-year rainfalls now at record low levels in numerous locations, including many areas critical for inflows into the Murray-Darling system.’ (Murray-Darling Basin Commission 2008). Furthermore, David Jones, the head of the NCC, referring to Melbourne rainfall records going back 150 years, ‘We are seeing something which is historically without precedent’ (as quoted in Wahlquist 2008).

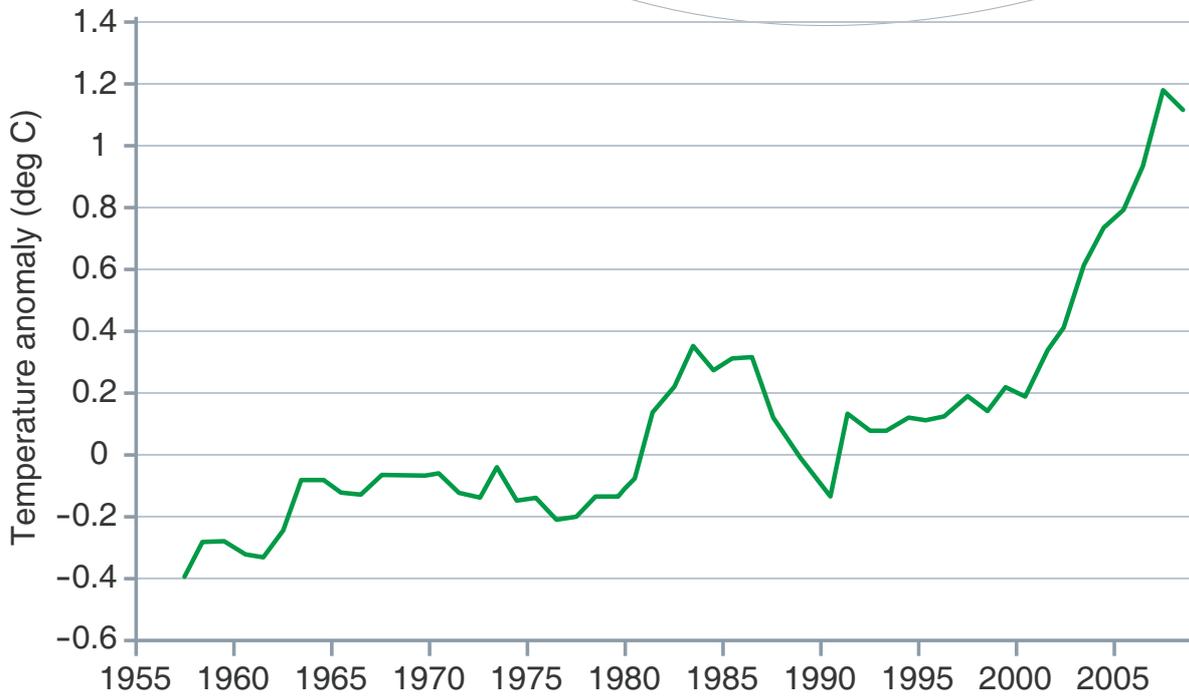
Can we blame the drought on an unusual sequence of El Niño episodes and the absence of any strong La Niña episodes? Possibly. However, it is worth noting that El Niño and La Niña events have their strongest impacts during the spring and winter months. As far as the Murray-Darling Basin is concerned, a significant proportion of the rainfall decline has occurred during the autumn period. It is also worth noting that, while El Niños tend to be associated with dry conditions over eastern and northern Australia, not all droughts are associated with El Niño conditions. In fact, the link between Australian rainfall and El Niño/La Niña is far from robust, being strong in some decades, and almost disappearing in others (Suppiah 2004).

Even if the current drought and its impacts were entirely unrelated to long-term climate change, we know that the Australian climate is characterised by persistent drought and that our water management systems are not resilient to long drought.

The past ten years have shown that under these conditions, our current water supplies and water management systems are unable to buffer water users for long. The real question is how to improve water management and water use to make it more resilient to persistently dry conditions, which will inevitably occur. Whether we are experiencing drought now or human-related climate change might help understand future risks that we face and how to deal with them, making it a question worth considering.

The contribution of climate change to the current drought does not really change the response by water managers over the next few years to dealing with the drought. Nor does it preclude the need for long-term measures to avoid the impacts we are currently seeing on the Murray, such as water recovery measures, improving water use efficiency, reviewing allocations and facilitating shifts in water. There are inherent





Source: Bureau of Meteorology (2008).

Figure 1.

7-year maximum temperature anomalies (differences from 1961–90 average) for the Murray-Darling Basin.

time delays in introducing such measures because of the need to negotiate across different states, the need to provide water security for irrigators and the infrequent opportunities to provide water to some of the iconic environmental sites.

This means that we may not be able to wait for absolute proof of climate change before needing to factor it in as a potential risk into these measures. Nor can we assume that current and future droughts will be similar to previous El Niño events.

The challenge for climate scientists, including Stewart Franks, is to quantify what they perceive to be the level of risk from human-induced climate change. Because of various

strands of evidence that climate scientists critically analyse on a day-to-day basis, many of us conclude that the risk cannot be zero, and that it is large enough to factor into future planning.

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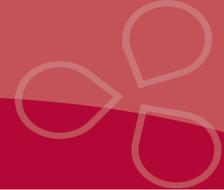
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Ian Smith works for CSIRO as a principal research scientist and is currently project leader for the South East Australia Climate Initiative, a collaborative project investigating the climate process in South East Australia and impacts on water.





A summary of international farm policy developments

What will Obama mean for agriculture?

The recent election of Barack Obama as President of the United States will likely have some flow-on effects for Australian agriculture. Prior to the election President-elect Obama gave a few clues on where he stood on agricultural policy. These included a commitment to renewable energy including ethanol, it is expected that this commitment will lead to plans to boost biofuel production. He supported the recent US Farm Bill and he is believed to have a somewhat protectionist outlook when it comes to trade. Many of these issues have been noted by the Australian Government with the Minister for Agriculture Tony Burke commenting to *Rural Press* that the government's 'pursuit of free trade would continue', he also said that the government would try and revive the Doha Trade negotiations once the new administration is in place.

NZ Election

New Zealand has also had a change in government, from the centre-left coalition led by Helen Clarke to the Centre-Right National Party led by John Key. The new government has just announced that they will carry out a review of the current Emissions Trading Scheme Legislation, an issue which has provided a lot of tension in New Zealand's agriculture sector.

There has been much concern expressed by New Zealand Federated Farmers President Don Nicholson about the inclusion of farm animals in the accounting scheme. He has come out and said, 'As Kiwis we seem to suffer from the going where angels fear to tread syndrome. Our peers look to New Zealand as the benchmark.

They ask us "Why on earth are you doing this to yourselves?" and we don't know what to say in response.'

Global Financial Crisis tests Europe's commitment to climate change mitigation

The current financial crisis has had an effect on many countries within the EU. Countries indulging Germany, Italy, Poland, Hungary, Bulgaria, Estonia, Russia and Slovakia have expressed their concern that the cost of additional emission reductions will harm their economies, through forcing energy intensive industries out of the region into parts of the world where there is no carbon costs.

In addition Italy and Spain have threatened non-compliance with the EU's Kyoto Protocol agreement as they are struggling to meet their targets.

Over one billion people to be hungry next year

The United Nations Food and Agriculture Organization (FAO) reported in September that rising food prices will push the number of hungry people in the world to over one billion next year, compared to 925 million currently and 848 million between 2003 and 2005.

Olivier De Schutter, the UN Human Rights Council's independent expert on the right to food says that the situation of world hunger is 'alarming'. He also said that although international prices have been going down, prices on domestic markets still remain at historically high levels. He explains that the effects were felt most in developing nations that import food, and because of this families have reduced the quantity

of the food which they eat and switched to poorer diets and have also cut back on healthcare and schooling.

De Schutter also noted that the current situation provided governments and international agencies with the opportunity to help those who were the most vulnerable – small farmers, landless labourers, herdsmen, fishermen and the urban poor.

Change in G20 Dynamics

Anthony Faiola and Glenn Kessler reported in the *Washington Post* (15 November 2008) that, 'When world leaders gathered last night for a White House dinner on the eve of a major economic summit, the faces around the table were not just those of the Europeans and Japanese who normally mix in the highest circles of diplomacy. This time, heads of state from the across the developing world, from China to Brazil to India, had a seat at the table.'

Many have speculated that the inclusion of representatives from these emerging superpowers marks a historical shift and an insight as to what international diplomacy will look like in the future. Many have also speculated that developing nations will account for a large majority of global growth next year as developed nations fall into recession, giving them an opportunity to exert a greater influence in various international forums, including the International Monetary Fund. One of the outcomes of the summit was a commitment by all countries to keep trade free and to try and revive the Doha round. Additionally attendees agreed to a far reaching action plan which will reshape international financial institutions and reform worldwide regulatory and accounting rules.



Value chain profitability report released

The question of whether farmers are actually better off being involved in value chains has been analysed in a report recently published by the Australian Farm Institute. Seven case studies are reported, attempting to distil the key factors that contribute to successful value chain engagement. This research provides some valuable information and lessons for farmers contemplating closer engagement in value chains, and should assist in ensuring that farmers do secure value from value chains.

As Australian agriculture evolves from being a low-cost supplier of bulk commodities to global markets into a supplier of both bulk commodities and more specialised and differentiated products to higher-value markets, the interaction between farmers and the value chain post farmgate will become an increasingly important element of farm business profitability.

Farmers will not automatically increase their profitability just by being participants in value chains managed by food processors or food retailers. They need to develop some unique features for their businesses that others cannot easily copy. This is the key message for farmers arising from research that Agribusiness consultant Michael O’Keeffe has completed for the Australian Farm Institute.

The research report, *Value in Value Chains: Collaborative Business Models and Farm Accreditation Systems Examined*, aimed to investigate whether farmers gained any benefit from being integrated into value chains, rather than simply selling their farm products through traditional agricultural marketing systems.

The study involved an examination of seven international case studies where groups of farmers have formed alliances with food processors or food retailers to market agricultural products. The case studies included vegetables, fruit and livestock products specifically selected to cover a range of business designs, each of which involved different ways of integrating farmers into value chains.

‘There are plenty of stories about how such arrangements disadvantage farmers, but the case studies included in this research also highlight that there are plenty of success stories as well,’ said Mick Keogh, Australian Farm Institute Executive Director.

‘What is obvious is that in cases where farmers have successfully been able to obtain extra value from such marketing arrangements, this has occurred because the farmers have developed unique skills and capabilities that cannot easily be copied by others, including other organisations involved in the value chain.

‘These unique skills include specific agricultural production skills for certain commodities, but also additional skills such as being able to accurately forecast supply, the ability to have produce available to meet specific seasonal demand, unique packaging and transport arrangements, or even the ability to meet specific quality or accreditation requirements.’

What is also evident from the case studies is that becoming involved in a value chain is not a ‘set-and-forget’ operation. Markets are constantly changing, and good market intelligence systems and open communication channels with other participants in the value chain is an important way of ensuring that value chains develop resilience, which enables them to evolve in response to changing markets.

This report tackles a set of questions that are continually asked by primary

producers and policy-makers in Australia, New Zealand, Canada and the United Kingdom (UK): Do producers benefit from the development of consumer aligned fresh food systems? When and how do producers benefit – or are the benefits captured by powerful supermarkets and their suppliers? What structures favour benefits flowing back to producers? What is the impact of farm accreditation schemes?

The report is in two parts. Part one addresses the different business models which have successfully integrated primary producers into consumer-aligned systems. The case studies explore the inter-relationships between three levels of competition, drawing on a range of business designs with different ways of integrating primary producers.

Part two tackles the usefulness of farm accreditation schemes for non-functional characteristics (such as region of origin, production system and environmental management) of farm produce. There is an increasing trend for food retailers and processors to differentiate farm produce based on the nature of its production system. An accreditation system may be used as the mechanism to communicate information about the non-functional attributes of the products to consumers.

To get a full copy of the report, go to the website or call **Tracey Bligh on (02) 9690 1388**.



Challenges for agriculture from an Australian ETS

Australia's emissions trading scheme (ETS) will form the basis of efforts to reduce national greenhouse gas emissions over the next 50 years. While not initially a covered sector, agriculture may become so in 2015. Under current international greenhouse accounting rules only gross emissions are counted, rather than net emissions. As such, having the wide range of greenhouse-positive actions that farmers can take recognised and rewarded by an ETS is a key challenge for Australian agriculture.

What approach should Australian agriculture take? What principles should be applied in making decisions about agriculture's future role in greenhouse reduction efforts? What factors need to be considered in thinking about the future role that Australian agriculture should play? The November 2008 issue of the *Farm Policy Journal* will contain papers discussing questions associated with key decisions confronting agriculture when responding to the development of a national ETS.

Scott Arnold has a degree in Forest Science and has worked in the forestry industry in Tasmania, Victoria and NSW for 18 years, specialising in forest information systems and forest yield regulation. He administers the carbon accounting system Forests NSW (accredited under the NSW GGRS scheme) and is part of a project team investigating the feasibility of NSW Catchment Management Authorities seeking GGRS accreditation. His paper delivers an insider's assessment of the NSW Government Greenhouse Gas Reduction Scheme and options for landowners considering participation. The regulatory environment, risks and estimated returns of the proposed national scheme are broken down and compared to other existing schemes.

Dr Suzi Kerr and Andrew Sweet, wrote a paper about the inclusion of agriculture in a domestic ETS and the New Zealand experience to date. **Suzi Kerr** is Director, senior fellow researcher and co-founder of Motu Economic and Public Policy Research, a non-profit research institute that carries out long-term, socially beneficial research programmes.

Suzi empirically and theoretically investigates domestic and international emissions trading issues with special emphasis on land use and climate change, domestic carbon permit market design, and nutrient trading in Lake Rotorua: involving theoretical analysis, simulation modelling, econometric analysis and policy design. Suzi has a PhD from Harvard and an honours degree from Canterbury.

Andrew Sweet is a Director and founder of the New Zealand office of Firecone, a trans-Tasman consulting firm specialising in public policy development, network industry regulation, and contract design. Andrew worked intensively on the design of the New Zealand ETS as a member of the NZ emissions trading group, with a particular emphasis on the design of the forestry and allocation aspects of the scheme. Andrew has also advised on the technical aspects of bringing agricultural emissions into an ETS, through work for the NZ Ministry of Agriculture and Forestry, and Victorian Department of Primary Industries.

Robert Poole is General Manager, Sustainable Growth with Murray Goulburn Co-operative: responsible for major new projects aimed at increasing sustainable milk supply; the management of emerging sustainability issues including environmental issues; and access to key farm inputs. Robert is managing trustee of his family's dairy farm business in northern Victoria and also supports the family's wheat and sheep operations. His article discusses the effect that the proposed Carbon Pollution Reduction Scheme will have on the dairy industry. He completed

his BAgSc in 1991 and his Master of Business Leadership, at RMIT, in 2005.

Tiho Anece is an environmental and resource economist with research interest in water economics, the economics of climate change, and the economics of environmental impacts from agriculture. He has published numerous articles and undertaken several research projects in these fields. He teaches in the degrees of Resource Economics and Agricultural Economics at USYD. Tiho is an active member of the Australian Agricultural and Resource Economics Society. His article examines the debate as to whether the agricultural sector should or should not be covered in an Australian national ETS.

Mick Keogh is the Executive Director of the Australian Farm Institute. His article examines the implications of the ETS for Australian agriculture, using ten model farm businesses, three future greenhouse emission price scenarios, and four potential modes of engagement for the agriculture sector with the ETS. The research was carried out in order to gain some preliminary insights into the potential impacts of the ETS on Australian agriculture. The aim is to foster some thinking about different policy settings that might be a more efficient or effective way for the sector to contribute to a reduction in national greenhouse gas emissions.

The November *Farm Policy Journal* will be released in early December. It can be viewed, by members and subscribers, or purchased at <http://www.farminstitute.org.au/publications/farm-policy-journal.html>

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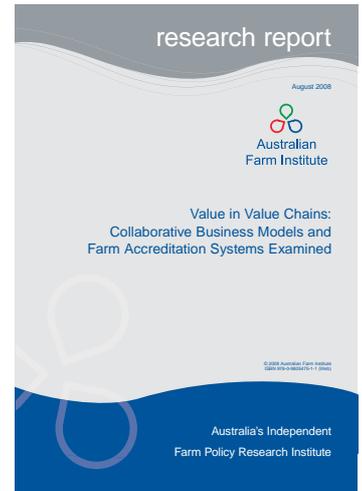
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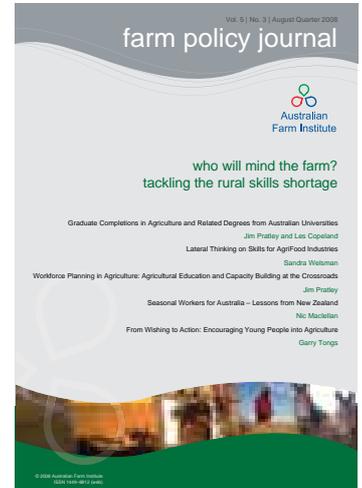
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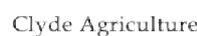
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Australian Farm Institute



Suite 73, 61 Marlborough St
Surry Hills NSW 2010
T 61 2 9690 1388
F 61 2 9699 7270
E info@farminstitute.org.au
W www.farminstitute.org.au