

NRM on farms



A monthly news summary about climate and natural resources in agriculture.

June 2011

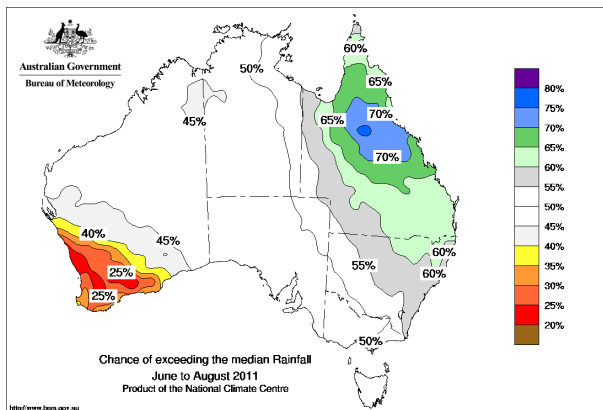
CLIMATE

BoM winter outlook

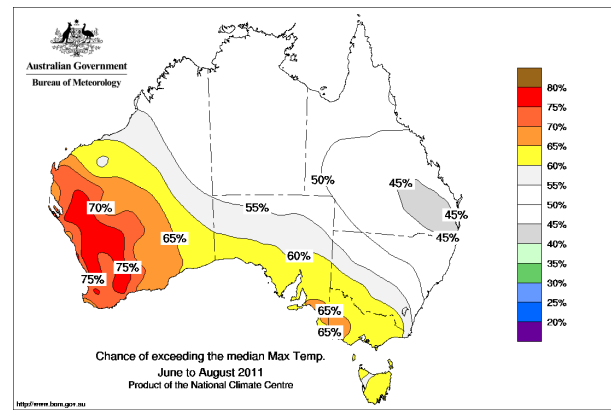
La Nina has ended and climate models surveyed by the Bureau of Meteorology suggest that the Pacific Ocean will continue to warm over the coming months, with neutral conditions likely to persist through winter; that is, neither La Niña nor El Niño.

The winter outlook is due to the combination of the still cool waters in the central tropical Pacific Ocean and warm conditions in the Indian Ocean. A weakly positive Indian Ocean Dipole event is forecast to develop during winter. In the past, positive IOD events have been associated with drier conditions over parts of Australia, particularly in the southeast, during the winter and spring seasons.

http://www.bom.gov.au/climate/ahead/rain_ahead.shtml



From June to August the climate odds favour a drier than normal season over south west WA and a wetter season over most of Queensland and north east NSW.



Warmer daytime and night-time temperatures are likely over southern parts of Australia, and cooler night-time temperatures over most of north west Australia.

Cold May for NSW

NSW experienced fourth coldest May on record for minimums, and twelfth coldest for daytime temperatures. Large areas of the state recorded minimums up to 3 °C below average. Rainfall was below average except for the coast where Newcastle received 400mm. The state average of 33.2 mm was below the historical average of 47.1 mm. The Murray Darling Basin May average of 27.7 mm was below the historical average of 42.3 mm.

<http://www.bom.gov.au/climate/current/month/nsw/summary.shtml#recordsTminDailyLow>



Primary
Industries

Garnaut Review released

The 2011 Garnaut Climate Change Review released on 31 May has recommended an initial carbon price of \$26 a tonne. While agriculture and the land sector will not be comprehensively covered by carbon pricing in the early years, the review says there are large advantages in allowing genuine sequestration in the land sector to be rewarded at the carbon price. There is a strong case for the Carbon Farming Initiative to be linked to an emissions trading scheme because of the significant potential for abatement in the land sectors. The Business Council of Australia has recommended an initial carbon price of \$10 with a modest increases over time.

<http://www.garnautreview.org.au/>

<http://www.bca.com.au/Content/101845.aspx>

Critical Decade report says we must act now

The Climate Commission's first report, *The Critical Decade*, says decisions made this decade will largely determine the extent of warming experienced over the next two generations. A decision not to take action is a decision to make the problem worse. The report says that while it is very important to sequester atmospheric CO₂ into land ecosystems, biological sequestration is not an offset for fossil fuel emissions. This is because emissions from land ecosystems represent the removal of carbon from a stock already in the active atmosphere-land-ocean carbon cycle. The combustion of fossil fuels represents the injection of additional carbon from an inert, underground stock into the active atmosphere-land-ocean system.

<http://climatecommission.gov.au/topics/the-critical-decade/>

WA drought reform pilot expands

The Australian Government has extended and expanded its WA pilot drought reform program to help farmers cope with current drought conditions. The program will be extended until June 2012, and the region will be expanded to the WA southwest to cover 96 per cent of WA farmers. A review panel chaired by the Australian Farm Institute's Mick Keogh will report on the pilot by 30 September 2011.

<http://www.daff.gov.au/agriculture-food/drought-pilot>

Productivity studies need to control for climate

An ABARES analysis of Australia's broadacre cropping productivity shows it is important to control for climate variability when estimating productivity. Across all farms and regions, output was 11 per cent lower post 1999–2000 than pre-2000 due to poorer climate conditions, but the real reason for the decline in productivity growth was the declining rate of technical change.

http://adl.brs.gov.au/data/warehouse/pe_abares99010543/RR11_5ProductivityPathways_LowResREPORT.pdf

US study shows climate has affected food production

US research has estimated that farmers produced less food during the past 30 years than they would have done were climate change not happening. Climate change effects on plant growth have cut wheat production by 2.5%, but boosted rice by 2.9% and soya beans by 1.3%. The study also shows that temperature has so far had a much greater effect on crop yields than rainfall.

<http://www.nature.com/nature/journal/v367/n6459/abs/367133a0.html>

7th warmest April on record

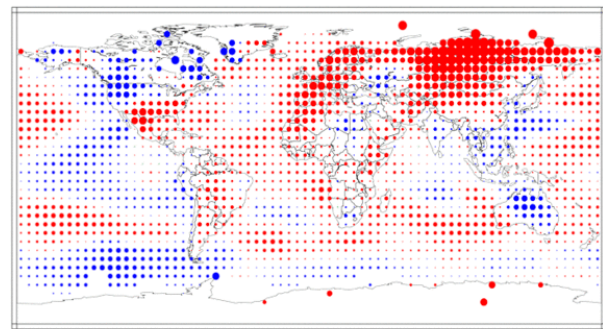
The Earth experienced the seventh warmest April since record keeping began in 1880 according to the US climate organisation NOAA. The United Kingdom experienced its warmest average April temperature on record, and Germany reported its second warmest April since records began in 1881.

<http://www.ncdc.noaa.gov/sotc/global/2011/4>

Temperature Anomalies April 2011

(with respect to a 1971-2000 base period)

National Climatic Data Center/NESDIS/NOAA



-5C -4C -3C -2C -1C 0C 1C 2C 3C 4C 5C
Degrees Celsius



CLIMATE RESOURCES

Climate Scientists Australia

Climate Scientists Australia is an independent group of senior scientists who aim to present a balanced and comprehensive view on climate-related issues, counter misrepresentations of climate science, and bring new scientific findings to the attention of policy makers, business leaders, the media and the public. The scientists include Will Steffen ANU and Andy Pitman UNSW.

<http://climatescientistsaustralia.org.au/index.html>

Climate dogs update

Victoria DPI's popular Climate Dogs animations have been updated with explanations of their movements in recent years.

<http://new.dpi.vic.gov.au/agriculture/farming-management/climate/understanding-weather-and-climate#1>

An update from the Climatedogs

In 2010 the Southern Annular Mode (Sam) hit some records for how far south it went (ie how short the chain was) and this is one aspect that explains Western Australia's dry season. It didn't significantly affect Victoria as the LaNina & IOD negative trumped it.

[< Previous](#) | [Next >](#)

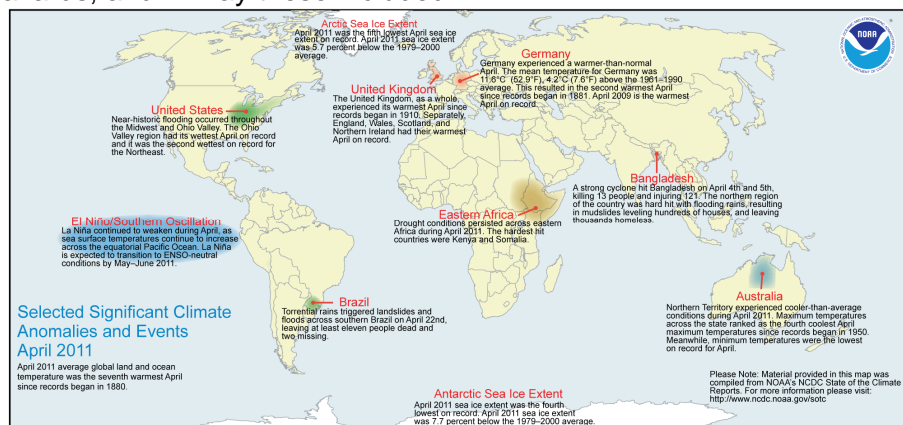
Global climate events & hazards

Each month US climate organisation NOAA publishes a monthly report on the global climate, including a map of selected climate anomalies and events. It also publishes a review of global climate hazards, and in May these included one of Britain's biggest ever wildfires, 116 wildfires in Canada, catastrophic flooding along the Mississippi River in the US, severe flooding in China, southern Africa, Canada and Colombia, and several disastrous tornadoes in the US.

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<http://www.ncdc.noaa.gov/sotc/global/>

<http://www.ncdc.noaa.gov/sotc/hazards/2011/5>



BoM FEATURE: LONG RANGE FORECAST MODELS

Meteorological centres around the world develop seasonal outlooks with dynamical modelling based on complex ocean and atmosphere processes. BoM's dynamical model is POAMA (Predictive Ocean Atmosphere Model for Australia). It is still in active development, but one product that has been released is the POAMA seasonal outlook for the El Niño - Southern Oscillation (ENSO) based on equatorial Pacific sea surface temperatures. Warm temperatures are associated with El Niño events, and cooler temperatures with La Niña events. BoM produces a summary table of ENSO outlooks from other models to verify the POAMA outlook. The table is updated every month and many farmers find it useful when planning future seasonal activities. To find it click on the link below.

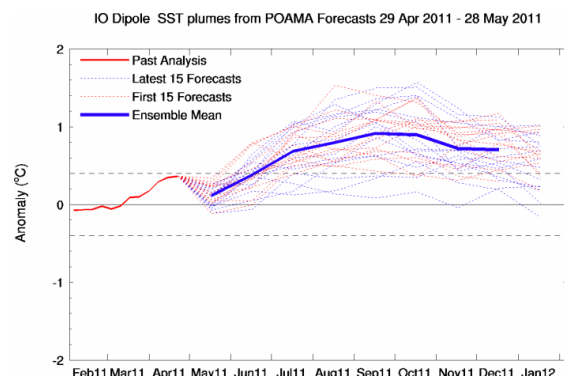
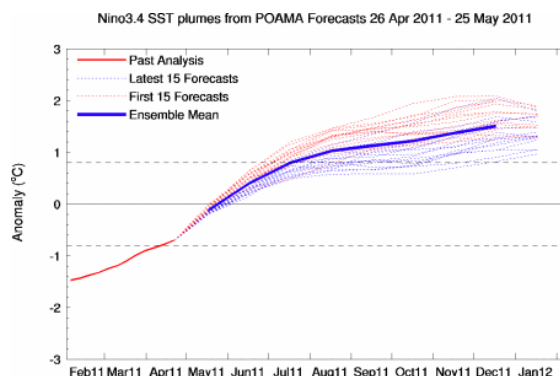
<http://www.bom.gov.au/climate/ahead/ENSO-summary.shtml>

MODEL / GROUP	Forecast Start Date	1-3 MONTHS (Jun- Aug 2011)	4-6 MONTHS (Sep-Nov 2011)
POAMA Australian Bureau of Meteorology	23 May	Neutral/Warm	Warm
System 3 ECMWF (EU)	1 May	Neutral	Neutral
GloSea * UK Met Office	1 May	Neutral	Neutral
CFS NCEP (US)	22 May	Neutral	Neutral
CGCMv1** NASA Goddard GMAO (US)	1 May	Warm	Warm
JMA-CGCM02 Japan Met. Agency	12 May	Neutral/Warm	Warm
KMA-SNU Korean Met. Administration	1 April	Neutral	Neutral
BCC_CMA BCC/CMA (China)	Unavailable	Unavailable	Unavailable

POAMA products

The POAMA model run at the Bureau of Meteorology generates a new forecast every day for the following eight months for three Pacific Ocean areas and for the Indian Ocean. Information for each area is presented in a graph of all the runs and an ensemble mean, as shown below. The graphs show a definite warming trend for ENSO (below left) which means an El Niño is predicted, and a warming trend for the Indian Ocean (below right), which indicates a Positive Indian Ocean Dipole (+IOD). This combination will reduce probabilities of winter/spring rainfall in the Murray Darling Basin.

http://www.bom.gov.au/climate/coupled_model/poama.shtml



EMISSIONS

Record energy related emissions in 2010

Energy-related carbon-dioxide emissions in 2010 were the highest in history, according to the latest estimates by the International Energy Agency. Emissions climbed to a record 30.6 gigatonnes after a dip in 2009 caused by the global financial crisis. In terms of fuels, 44% of the estimated CO₂ emissions in 2010 came from coal, 36% from oil, and 20% from natural gas. The level is concerning because the global goal of preventing a temperature rise of more than 2 degrees means global energy-related emissions in 2020 must not be greater than 32 Gt.

http://www.iea.org/index_info.asp?id=1959

Brahman cattle emit less methane

CSIRO researchers have found that Brahman cattle feeding on tropical grasses emit up to 30 per cent less methane than previously thought, possibly because the original equation used to calculate methane emissions may be too high. While the findings relate only to cattle in the Australian tropics, the results could be used to recalculate Australia's greenhouse gas accounts.

<http://www.csiro.au/news/Research-on-beef-methane-emissions.html>

AFI research into CFI impacts

Australian Farm Institute research into the impact of the Carbon Farming Initiative on farm businesses has found that environmental services auctions and environmental stewardship payments would provide the best options for livestock producers as they would provide payments for a variety of environmentally beneficial actions in addition to carbon sequestration. A related project found that a mandatory carbon price could have a negative impact on beef farm profitability. Full reports on the research will be available soon.

<http://www.farminstitute.org.au/newsletter/May.html>

Floor price recommended for carbon

A paper commissioned by Australia's Multi-Party Climate Change Committee from the ANU Centre for Climate Economics and Policy has recommended setting a price floor for carbon to speed up investment in low-carbon options in the power sector. The ANU paper recommends a floor price below the expected market permit price, to avoid the floor price permanently exceeding carbon prices in other major developed country schemes.

<http://www.climatechange.gov.au/government/initiatives/multi-party-committee/meetings/~media/publications/mpccc/jotzo-floor-price-mpccc-may.pdf>

FarmGAS case studies now available

Case studies of farm emissions calculated using the FarmGAS calculator are now available from the Australian Farm Institute. The case studies cover cropping, livestock and mixed farming systems, intensive cropping, a cattle feedlot, an intensive piggery, and rangelands livestock.

<http://farmgas.farminstitute.org.au/publicpages/AFIPublic.aspx?ReturnUrl=/default.aspx>

New strategy aims to reduce agricultural ammonia

A US study has found that feeding dairy cows with tannins can reduce both the amount of nitrogen excreted in urine, and inhibit activity of the enzyme that converts manure nitrogen to ammonia. The cows were fed tannin extracts from red quebracho and chestnut trees.

<http://www.sciencedaily.com/releases/2011/05/110511131136.htm>

Greenhouse gases in animal agriculture

The new issue of the Animal Feed Science and Technology journal is a special edition about greenhouse gases in animal agriculture and finding a balance between food production and emissions. The edition summarises papers presented at a conference in Canada last year. The papers cover microbial aspects of ruminal methane production, methods to measure emissions from livestock and manure, approaches to mitigating methane without compromising production, deriving value from manure through reduced emissions, and the role of modelling in finding the balance between livestock emissions and food production.

<http://www.sciencedirect.com/science/journal/03778401>

Primefact on GHG life cycle assessment

A new NSW DPI Primefact about life cycle assessment of greenhouse gas emissions from agricultural enterprises is now available online.

<http://www.dpi.nsw.gov.au/agriculture/resources/climate-and-weather/general/life-cycle-assessment-of-greenhouse-gas-emissions-from-agricultural-enterprises>

Fact sheets on agricultural emissions research in Australia

DAFF's climate change research program has produced online fact sheets about current research into reducing emissions from livestock, reducing greenhouse emissions using soil carbon, and reducing nitrous oxide emissions.

<http://www.daff.gov.au/climatechange/australias-farming-future/climate-change-and-productivity-research>

WATER

Feedback on guide to proposed Basin Plan

Feedback to the guide to the proposed MDB Basin Plan shows that while most people accept the need for sustainable water use in the Basin they hold different views on how to achieve this, and how to balance the needs of the environment with other water uses. A key point of difference centred on the amount of additional surface water needed for the environment.

	Respondents (incl. campaigns)	Respondents (excl. campaigns)
1. No support	391	360
2. Support for intent and target range in the guide.	450	272
3. Support for intent and a higher target.	1440	86
4. Support for a plan but not as proposed in the guide.	535	535

Most of the 3105 pieces of feedback came from agricultural interests (38%) and the environment and natural resources sector (30%). On a state basis most feedback came from Victoria (41%) and NSW (34%). Within the MDB area, most feedback was received from the Murrumbidgee (30%), Murray (22%) and Mt Lofty Ranges (10%) regions. The MDBA will release the proposed Basin Plan at the end of June for a formal consultation period of at least 16 weeks.

<http://www.mdba.gov.au/communities/having-your-say/feedback-overview>

MDB water storages at 82% capacity

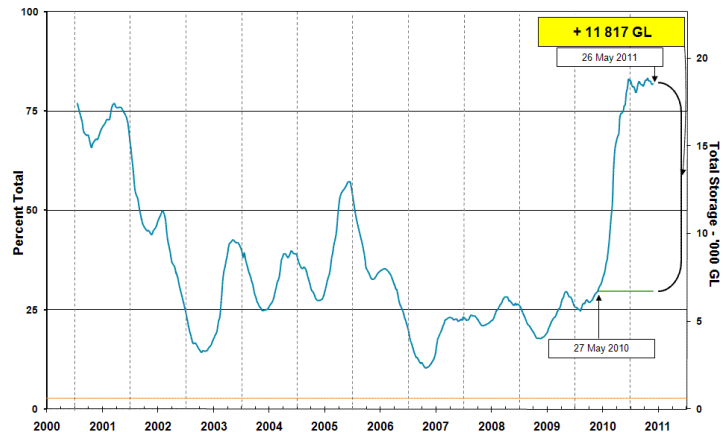
Water storage levels in the Murray–Darling Basin (MDB) are at approximately 82 per cent of total capacity. This is 52 percentage points or 11 817 GL more than this time last year.

<http://www.mdba.gov.au/water/waterinstorage>

Report into recycled drinking water

A new National Water Commission report 'Talking about water' looks at public perception of recycled water and the effect terminology has on communities' acceptance of recycled water for drinking.

http://www.nwc.gov.au/resources/documents/49_Talking_About_Water.pdf



US study finds dissolved methane in drinking water

A US study of methane concentrations in 60 drinking water wells in areas where coal seam gas exploration is underway found that dissolved methane concentrations in water from wells located more than 1 kilometre from fracking operations averaged about 1.1 milligrams of dissolved methane per litre while in water from wells within 1 km of one or more fracking operations, methane concentrations averaged 19.2 mg per litre.

<http://www.biology.duke.edu/jackson/pnas2011.html>

SOILS

Pasture rotation is key to increasing soil carbon

A NSW DPI study of carbon levels in three long-term farm trials near Wagga Wagga suggests that pasture holds the key to maintaining, and even increasing, soil organic carbon under crop/pasture farming systems.

<http://www.publish.csiro.au/nid/84/paper/SR10185.htm>

Soils on the ABC Science Show

UNE Professor Iain Young spoke to Robyn Williams on the ABC Science Show recently about the importance of protecting soils to ensure our future survival.

<http://www.abc.net.au/rn/scienceshow/stories/2011/3219153.htm>

New book: Biological processes in soil phosphorus cycling

This new publication from Bunemann et al collates up to date information on global P cycling, biological impacts on soil P, and testing methods.

<http://www.springer.com/life+sciences/biochemistry+%26+biophysics/book/978-3-642-15270-2>

Biochar is not a silver bullet

In a recent overview of the potential of biochar, CSIRO biochar researcher Evelyn Krull says it is not a silver bullet and only one of many opportunities that we need to investigate and utilise to reduce our emissions.

<http://theconversation.edu.au/can-biochar-save-the-planet-1099>

ENERGY

Appeal against Gloucester Gas Project

Barrington-Gloucester-Stroud Preservation Alliance has lodged an appeal against two Planning Assessment Commission decisions to approve a concept plan and stage one of the Gloucester Gas Project. The concept plan involves extraction of coal seam gas within a 210km area between Barrington and Great Lakes, transporting the gas from the processing facility to the existing gas supply network via a 95-100 km pipeline traversing several LG areas, and a gas delivery station at Hexham. The stage one project approval is for 110 gas wells and gas and water pipelines between Gloucester and Stratford, a central processing facility, gas transmission pipeline 95-100 km in length and the Hexham gas delivery station.

<http://www.edo.org.au/edonsw/site/bulletin/bulletin.php>

<http://www.bgsp-alliance.asn.au/>

Energy analysis looks at carbon price

A report into investment trends in Australia's energy markets suggests a carbon price of \$40 per tonne is necessary to move to the first stage of a low emissions energy economy. This price will allow gas fired electricity to compete with cheap black coal power generators on the east coast of Australia. A price of \$70 per tonne has been suggested for Western Australia.

<http://ret.gov.au/energy/Documents/Energy%20Security/Deloitte-Report-on-Electricity-Investment.pdf>

BIODIVERSITY

Benefits of perennial forage shrubs

A recently released booklet, Perennial forage shrubs - Providing profitable and sustainable grazing, outlines the benefits and management considerations in incorporating forage shrubs into mixed farming systems, particularly in rangeland areas. It is based on several years' research across Australia. To access it, click on 'Key findings of Enrich' on the site below.

<http://www.futurefarmonline.com.au/>

New environmental stewardship funding

Through the Environmental Stewardship program, 42 NSW farms in the Central West, Namoi and Border Rivers Gwydir CMA regions will receive support to protect endangered ecological communities of weeping myall woodland, box gum grassy woodland and basalt and alluvial natural grasslands. This program gives landholders access to 15-year grants so they can

take long-term action on their land to reduce grazing intensity, control weeds and feral animals, and protect key species and ecological communities.

<http://www.environment.gov.au/minister/burke/2011/mr20110506.html>

GM trials of wheat and barley underway in NSW

Australia's first trial of genetically modified wheat and barley has begun near Narrabri. CSIRO is running the three year trial of 14 strains of wheat and barley will be grown. Some will test the viability of enriching the crops with extra nutrients, and others will focus on using nitrogen from the soil more efficiently. The trials will be separated from other crops by a 200 metres buffer.

<http://www.smh.com.au/nsw/gm-wheat-trial-begins-amid-secrecy-20110527-1f8hl.html>

AVPMA proposes to discontinue use of carbendazim

The Australian Pesticides and Veterinary Medicines is proposing that the use of the fungicide carbendazim be permanently discontinued on a range of produce because preliminary review findings identify that some uses of carbendazim products may pose an undue risk to the public or workers using the chemical. Current uses on macadamia nuts and pulses will remain, subject to amended label instructions. APVMA invites public comment on the proposed regulatory outcomes. Consultation closes on August 5, 2011.

http://www.apvma.gov.au/news_media/chemicals/carbendazim.php

FOOD

ABARES report: Australia's food security risk is low

A new ABARES report says there is no foreseeable risk to Australia's food security, because we produce twice as much food as we consumes, produce almost all of our fresh food and can easily afford the food that we import. Australia's future food production challenges include climate change, availability of resources such as water, fertiliser, energy and land for food production, and slow down in the growth of productivity. The report says the most effective contributions Australia can make to global food security are providing technical assistance to improve agricultural productivity in developing countries and continuing to seek improvements in international trading rules that allow the flow of food to where it is needed.

http://adl.brs.gov.au/data/warehouse/pe_abares99010538/SEI1_2011GlobalFoodSecurityReport.pdf

Australian sustainable food summit report

Australia should play a key role in building a sustainable and resilient food system, locally and globally, says the report of the national sustainable food summit conference held in Melbourne in April. We should aim to become a world leader in sustainable, low-input agriculture, exporting sustainably produced, high quality food and sharing expertise with the world, particularly in food production under climate variability and climate change.

<http://www.3pillarsnetwork.com.au/kb/nsfs-conference-report.pdf>

Key measures for food in changing climate

Development of staple food varieties with heightened adaptation to future climatic conditions is a key measure to build resilience of agricultural production systems according to FAO, in a recent submission to the UN Framework Convention on Climate Change. Material existing in gene banks needs screening, and in-situ diversity (including that of uncultivated wild

relatives) needs to be collected to breed better climate adapted crops, in particular heat, drought, submergence and saline-tolerant varieties of the major cereals.

<http://climate-l.iisd.org/news/fao-submission-to-unfccc-focuses-on-food-security/>

Global food waste

An FAO study into global food losses and food waste suggests that every year, a third of the world's food, around 1.3 billion tonnes, is lost or wasted along the supply chain. In medium- and high-income countries food is wasted early in the food chain due to quality standards that reject food items on shape or appearance, and significantly wasted at the consumption stage due to insufficient purchase planning, expiring 'use by dates' and careless consumers.

http://www.fao.org/fileadmin/user_upload/ags/publications/GFL_web.pdf

SUSTAINABILITY

NSW Government moves on land use planning

New NSW Government initiatives are in place to address concerns around land use conflicts in regional areas, particularly between the coal mining and coal seam gas industries and agricultural industries. The initiatives include a 60-day moratorium on issuing exploration licences to enable new arrangements for coal, coal seam gas and petroleum exploration licenses to be put in place. All applications for licences will have to be exhibited for public comment and have to submit an agricultural impact assessment until regional land use plans are put in place to protect strategic agricultural lands. Projects will not be supported where it is determined they would result in unacceptable impacts on agricultural lands or industries that are considered to have high strategic value. The government is also developing an aquifer interference policy to protect aquifers. For more detail read the NSW Planning fact sheet on strategic regional land use.

<http://www.planning.nsw.gov.au/LinkClick.aspx?fileticket=VHaWmz7dey8%3D&tabid=495&language=en-US>

Queensland bans mining on protected cropping land

Queensland has banned new mining projects that would permanently damage cropping land in southern and central regions of the state. The law will apply for strategic cropping land even though the parliamentary debate and the legislation won't be passed until later this year. The highest level of protection is given to areas labelled Strategic Cropping Land Protection Areas while a second category called Strategic Cropping Land Management Areas will cover other parcels of land in eastern Queensland. Under that category projects will need to avoid permanently rendering cropping land unusable and mitigate any unavoidable impacts.

<http://www.abc.net.au/rural/qld/content/2011/05/s3231843.htm>

<http://www.derm.qld.gov.au/land/planning/strategic-cropping/index.html>

Our cities, our future

The Australian government has released a national policy for Australian cities that says the secure supply of water, energy and food in urban areas is becoming an increasing issue in a changing climate. Urban land use issues underpin current community concerns about food security, including the potential loss of productive agricultural land to urban expansion and development.

http://www.infrastructure.gov.au/infrastructure/mcu/files/Our_Cities_National_Urban_Policy_Paper_2011.pdf

New book: Demographic change in rural Australia

Charles Sturt University academics examine broad and local-scale patterns of demographic change in their new book *Demographic change in Australia's rural landscapes Implications for society and the environment*. The patterns of change are due to population decline and dissolving rural communities, and amenity-led inwards migration (tree-changers). The book links demographic change with environmental, land-use, social and economic factors.

<http://www.publish.csiro.au/nid/18/pid/6417.htm>

Corangamite landcare

Victoria's Corangamite CMA has produced a booklet promoting the work of inspiring individuals and their commitment and passion to protecting and restoring the landscape.

<http://corangamite.landcarevic.net.au/resources/regionalinformation/landcare-impressions-story-book/>

Call to transform US agriculture

A group of leading scientists, economists and farmers has published a paper in Science journal calling for a shift in US agricultural policy because current policies fail to address farming's contribution to global warming, biodiversity loss, natural resource degradation, and public health problems. The authors also wrote the 2010 paper 'Toward sustainable agricultural systems' in the 21st century. They are particularly critical of the Farm Bill, which they say does little to promote sustainability, distorts market incentives and makes the US food system overly dependent on a few grain crops mainly used for animal feed and highly processed food, with deleterious effects on the environment and human health.

<http://www.sciencemag.org/content/332/6030/670>

<http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/Systems-Ag-Report-Brief.pdf>

EVENTS

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|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| June 8-9 | Innovative solutions for environmental challenges, SCU Lismore
http://www.scu.edu.au/enviro-innovations/index.php/23/ |
| June 15-16 | AFI conference: Can productive agriculture be consumer-friendly? Sydney
http://www.farminstitute.org.au/news-and-events/PTP2011#c2 |
| June 20-23 | 15th Australasian Vertebrate Pest Conference, Sydney
http://www.avpc.net.au |
| June 23-24 | Bushfire in the landscape conference
http://www.nccnsw.org.au/content/bushfire-landscape-different-values-shared-vision |
| June 28-July 7 | Earth on the edge: Science for a sustainable planet, Melbourne
http://www.iugg2011.com/ |
| July 12-14 | Four degrees or more climate conference, Melbourne
http://www.fourdegrees2011.com.au/ |
| July 18-21 | NSW weeds conference, Coffs Harbour.
http://wired.ivvy.com/event/QK8MZBH4Y/ |
| July 20-21 | Water Australia Summit, Sydney
www.halledit.com.au/water2011 |
| July 26-28 | NSW Grassland Society conference, Bathurst
http://grasslandnsw.com.au/blog/?page_id=3 |
| July 28 | Second NSW travelling stock routes conference, Orange
http://www.grassroutes.org.au/ |

August 22-23	AWA catchment management conference, Wangaratta http://www.awa.asn.au/EventDetail.aspx?id=4294970002
August 22-25	Irrigation Australia conference, Launceston http://online.saneevent.com.au/ial2011/
September 5-7	NSW Landcare forum, Parkes http://parkeslandcare.org.au/
September 15-18	2nd Asia Pacific Biochar Conference, Kyoto, Japan http://apbc2011.com/
September 18-22	Soil science in a changing world, Wageningen, The Netherlands. www.wageningensoilmeeting.wur.nl
September 25-29	5th World Congress on conservation agriculture, Brisbane http://www.wcca2011.org/index.htm
September 25-30	Rhizosphere 3 International Conference, Perth http://rhizosphere3.com/
November 8-11	20 th NSW Coastal Conference, Tweed Heads http://www.coastalconference.com/
November 24-25	Bioenergy Australia conference, Sunshine Coast http://www.bioenergyaustralia.org/index.html
November 28-30	APEN forum, Sustaining landscapes, livelihoods & lifestyles, Armidale http://www.apen.org.au/default.asp?PageID=71
December 6-8	Agri-Food: Sustainabilities and agriculture in the Asia-Pacific region http://www.nirra.anu.edu.au/event/agri-food-xviii-sustainabilities-justice-and-agriculture-asia-pacific-region

OTHER NRM NEWSLETTERS

ASSAY - acid sulfate soils

<http://www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/assay>

Climate Institute newsletter

<http://www.climateinstitute.org.au/>

National Water Commission Distilled newsletter

<http://www.nwc.gov.au/www/html/171-subscribe.asp>

Newstreams- aquatic habitat

<http://www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/newstreams>

NRM Notes (invasive animals)

<http://www.invasiveanimals.com/research/goals/goal-11/11t1/>

Water matters

<http://www.environment.gov.au/water/publications/watermatters/index.html>

Weekly Australian Climate, Water and Agricultural Update

http://www.abares.gov.au/publications/weekly-update/_nocache

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