

NRM on farms



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

July 2015

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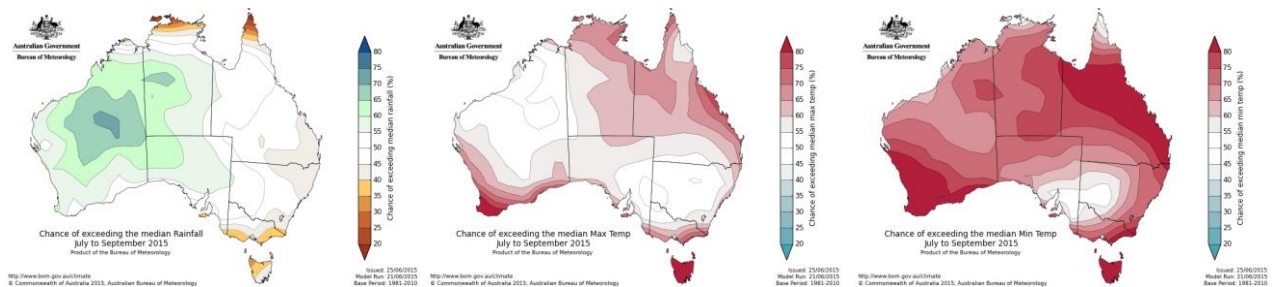
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CLIMATE

Seasonal outlook



NSW has a roughly equal chance of a wetter or drier season and average daytime temperatures over the next three months due to warm sea surface temperatures in the Indian Ocean, and the Pacific El Niño. Warmer than normal nights reflect warm ocean temperatures in the Indian Ocean and waters near Australia.

<http://www.bom.gov.au/climate/outlooks/#/overview/summary/>

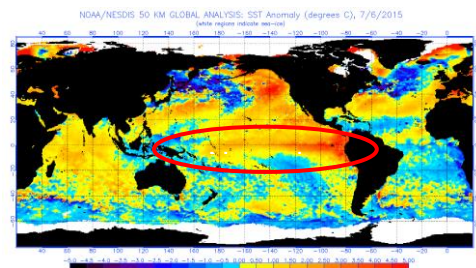
Video: <http://www.bom.gov.au/climate/outlooks/#/overview/video>

Ocean temperatures

Sea surface temperature anomalies have continued to increase by more than 2°C in the eastern equatorial Pacific, reaching more than +3°C in small areas.

<http://www.ospo.noaa.gov/Products/ocean/sst/anomaly/index.html>

<http://www.bom.gov.au/climate/enso/>



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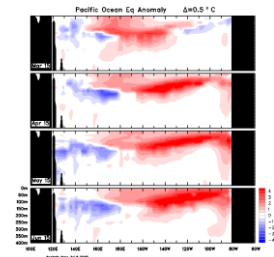


Department of
Primary Industries

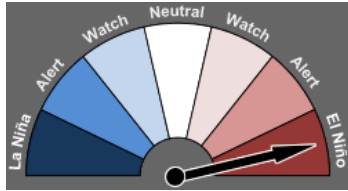
Subsurface warmth increases

Subsurface anomalies across large areas of the eastern half of the equatorial Pacific have reached more than +4°C. Cool anomalies persist in the sub-surface of the western equatorial Pacific.

<http://www.bom.gov.au/climate/enso/>



ENSO Tracker at El Niño status



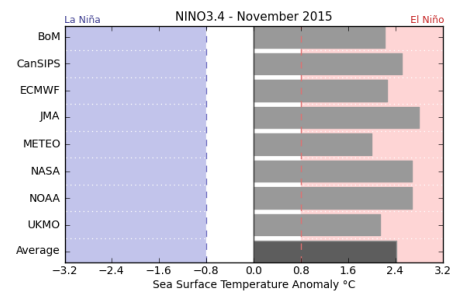
The ENSO tracker is now at El Niño status because El Niño thresholds in the tropical Pacific oceanic and atmospheric data have been exceeded, and climate models agree that the event will be sustained.

<http://www.bom.gov.au/climate/enso/tracker/>

Model outlook

The central tropical Pacific Ocean is likely to continue to warm throughout the winter and spring months with the average of the model forecasts reaching +2.3°C by November. NINO3.4 values of this magnitude have only been observed on a handful of occasions since 1980; during the 1982-83 and 1997-98 El Niño events.

<http://www.bom.gov.au/climate/ahead/model-summary.shtml#tabs=Pacific-Ocean>

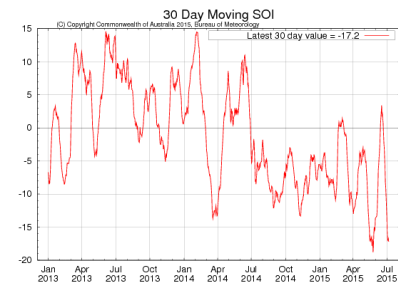


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SOI drops sharply

The Southern Oscillation Index dropped sharply in late June, returning to strong negative values. The 30-day SOI value to 5 July was -16.7. Sustained negative values below -7 may indicate El Niño.

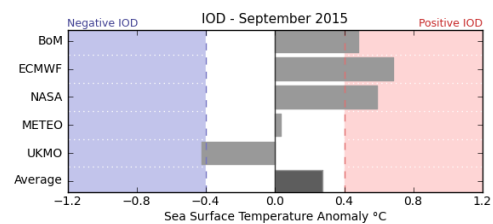
<http://www.bom.gov.au/climate/enso/#tabs=SOI>



Positive IOD by spring?

Three of five model outlooks suggest some tendency towards a positive IOD by spring 2015. A positive IOD typically reduces rainfall in central and southern Australia, and can therefore exacerbate El Niño driven rainfall deficiencies.

<http://www.bom.gov.au/climate/ahead/model-summary.shtml#tabs=Indian-Ocean>



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NSW DPI seasonal conditions report

Subscribe to NSW DPI's seasonal conditions report, and the climate summary which provides a snapshot of the monthly report in an easy to read four-page format with additional graphs and charts.

<http://www.dpi.nsw.gov.au/agriculture/emergency/seasonal-conditions/regional-seasonal-conditions-reports>

CLIMATE RESOURCES

Hot storms bring big rainfall swings

UNSW analysis of high-resolution rainfall data from 79 locations across Australia from 1955 to 2005 found that Australian rainfall patterns become less uniform as temperatures rise. Heavy rainfall becomes even heavier, and lighter bursts grow less intense. The authors predict a 5-20% increase in the peak water flow rate during floods at temperatures 5°C warmer than today. This could bring storms that are more unpredictable and destructive, and more intense short-term floods.

<https://newsroom.unsw.edu.au/news/science-tech/why-warmer-storms-could-lead-more-flooding-expected>

<https://newsroom.unsw.edu.au/news/science-tech/study-shows-flash-flooding-risks-increase-peak-downpours-intensify>

Water, drought and natural resource policy in White Paper

The Australian Government's Agricultural Competitiveness White Paper has five priorities: A stronger business environment; upgraded water, transport and communications infrastructure; more effective management of drought and risk management; strong research and development for productivity growth, and effective natural resource policy; and access to premium markets.

<http://apo.org.au/files/Resource/ag-competitiveness-white-paper.pdf>

Terra Nova adaptation information hub

The Terra Nova website provides free climate change adaptation data and information to researchers and decision-makers in Australia and across the region.

<https://terranova.org.au/>

Adaptive capacity guide book

This guide from the Southern Slopes Climate Change Adaptation Research Partnership is designed to help Australia's NRM managers help communities set local priorities to adapt to a changing climate.

<https://terranova.org.au/repository/southern-slopes-nrm-collection>

East Coast Lows project

The East Coast Low program was established in 2010 to improve understanding of past, current and future ECLs along the eastern seaboard of Australia and assess how these events influence extreme rainfall events, coastal processes and water security. Key findings from the project will be presented at a workshop in Sydney on 20 July.

<https://www.eventbrite.com.au/e/east-coast-lows-past-present-and-future-tickets-17180334844>

The potential of social networks in climate adaptation

This study assesses the potential of social networks for engaging local communities in climate adaptation policy, drawing on a case study of the Shoalhaven region.

<http://www.tandfonline.com/doi/full/10.1080/14693062.2015.1052955#.VZyvtfyUc6I>

Western Pacific Ocean currents and climate

This review covers the structure and variability of the currents, their climate impacts, and how they may be affected by greenhouse warming. The climatic impacts are far-reaching, affecting sea surface temperatures and their feedback to the atmosphere; and through contribution to the global thermohaline circulation.

<http://www.nature.com/nature/journal/v522/n7556/abs/nature14504.html?lang=en>

Agricultural policy in climate change

Farming First has developed a number of policy tools to provide knowledge, information and support to emphasise the importance of agriculture in climate change negotiations.

<http://www.farmingfirst.org/unfccc-toolkit-introduction/>

Seven extreme droughts

Where areas are under water stress it only takes a string of bad rainfall years or poor management decisions to plunge a region into crisis and chaos as shown in seven extreme droughts that have occurred in the past decade, including Australia's Millennium Drought.

<http://www.wri.org/blog/2015/06/global-tour-7-recent-droughts>

Heat map and environmental viability

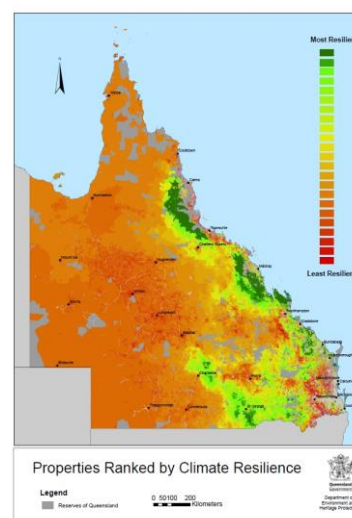
James Cook University scientists have mapped where Australian species may be less affected by climate change. This information has been used by the Queensland Government to produce a heatmap that shows the environmental viability of all blocks of land larger than 50 hectares in 2085, under the worst-case IPCC greenhouse gas emission scenario.

http://www-public.jcu.edu.au/news/JCU_146883

UK priorities for agricultural adaptation

Farm water efficiency, flood risk management, sustainable soil management, and pest and disease monitoring are among agricultural priorities for action in the UK's 2015 report to Parliament on progress in preparing for climate change.

http://www.theccc.org.uk/wp-content/uploads/2015/06/6.736_CCC_ASC_Adaptation-Progress-Report_2015_FINAL_WEB_070715_RFS.pdf



Overview of climate change adaptation platforms in Europe

The European Environment Agency has published its analysis of how online climate adaptation information is shared across Europe and in individual countries. The report, 'Overview of climate change adaptation platforms in Europe' looks at 14 national adaptation web portals, and also considers the links to online resources for climate services and disaster risk reduction.

<http://www.eea.europa.eu/publications/overview-of-climate-change-adaptation>

NASA climate projections for all

NASA has made three of its NASA Earth Exchange data sets freely available: downscaled climate projections for the US, global daily downscaled projections and global land survey. <https://nex.nasa.gov/nex/projects/1356/>

Guide to developing heat wave warning systems

The World Meteorological Organisation and the World Health Organisation have published a guide to developing warning systems for human health in heatwaves. It considers who is at risk, approaches to assessing heat stress, heat-intervention strategies, communicating heat risk, and the essential elements of summer heat plans.

<http://www.who.int/globalchange/publications/heatwaves-health-guidance/en/>

Building disaster-resilient communities and economies

This report is part of the UN's Principles for Sustainable Insurance Initiative and looks at building resilience to cope with floods, cyclones and earthquakes.

http://www.unepfi.org/fileadmin/documents/building_disaster-resilient_communities_economies_01.pdf

Global risk map

The Global Risk Map is also part of the above UN project and highlights the social and economic devastation caused by cyclones, floods, earthquakes and related perils over the past 115 years.

Right: Areas affected by cyclones in Australia in the past century.

<http://globalriskmap.nicta.com.au/>



EMISSIONS

Australian Climate Roundtable policy principles

The Australian Climate Roundtable, a group of diverse organisations, has set out principles to guide the development of sound long term policy to address climate change. Policy instruments should be capable of achieving deep reductions in Australia's net emissions; provide confidence that targeted emissions reductions actually occur; be based on an assessment of the full range of climate risks; be well designed, stable and internationally linked; operate at least cost to the domestic economy while maximising benefits; and remain efficient as circumstances change and Australia's emissions reduction goals evolve.

<http://www.climateinstitute.org.au/australian-climate-roundtable.html>

Nitrous oxide emissions from crop foliage

N₂O emissions from foliage account for 13–17% of total soil–crop emissions and vary with plant species, and the time of day. N₂O flux from cotton plants was closely related to soil water content with emissions declining as the soil dried between irrigations. N₂O emissions from maize foliage were similar to cotton but were lower from soybean foliage. Studies that exclude N₂O emissions from crop foliage will significantly underestimate the N₂O flux from the system.

<http://www.publish.csiro.au/nid/40/paper/CP14301.htm>

Emissions in controlled traffic farming

A review of the potential of controlled traffic farming (CTF) to mitigate greenhouse gas emissions and enhance carbon sequestration suggests that improved soil structural conditions and aeration offered by CTF can reduce nitrous oxide emissions by 20-50% compared with non-CTF.

<http://www.smartagriplatform.com/resources/documents/ctf.%20greenhouse%20gases%20and%20carbon,%20asabe%20pa per%20nres%2011049.pdf>

Farm300 livestock emissions case studies

The Farm300 program was developed by MLA to help cattle and sheep producers increase on-farm productivity and profitability while reducing greenhouse gas emissions. The progress of six Farm300 participants were tracked in videos which can be viewed online.

<http://www.mla.com.au/Research-and-development/Environment-sustainability/Farm300>

Nominations for emissions reduction targets

Ahead of the Paris climate summit at the end of the year each country has to nominate its pollution reduction target for the years after 2020. Australia has yet to nominate its target but most countries are targeting around -25 to -30 per cent reductions by 2025 and are proposing to accelerate reduction rates after 2020.

http://climateinstitute.org.au/verve/_resources/TCl_June_Global_Update.pdf

New ERF methods and fact sheets

The Emissions Reduction Fund has released new methods for improving the efficiency of synthetic nitrogen fertiliser in irrigated cotton production, and reforestation and afforestation on cleared or unforested land. ERF has also published fact sheets on aggregation of multiple sources of carbon abatement, and participants' legal rights in aggregation projects.

<http://www.environment.gov.au/climate-change/emissions-reduction-fund/methods>

<http://www.cleanenergyregulator.gov.au/ERF/Want-to-participate-in-the-Emissions-Reduction-Fund/Planning-a-project>

Transition of CFI methods to the ERF

Consultation is under way on the transition of nine Carbon Farming Initiative methods into the Emissions Reduction Fund, and revoking of 17 superseded methods covered by either the transitioning methods or the new land sector methods under the Emissions Reduction Fund. The methods affected by the proposed transition and revocation cover activities across the land sector—including agriculture, vegetation management, landfill and alternative waste treatment.

<http://www.environment.gov.au/climate-change/emissions-reduction-fund/carbon-farming-initiative-project-transition>

WATER

DPI Water replaces Office of Water

The NSW Government has established DPI Water and WaterNSW to replace the NSW Office of Water. DPI Water is responsible for water policy, planning, regulation and water program administration, while WaterNSW is a State-owned corporation responsible for managing raw water supply across the State on a commercial basis.

http://www.water.nsw.gov.au/_data/assets/pdf_file/0007/566737/Media_release-dpi_water_established.pdf

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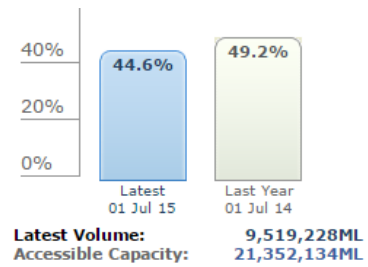


Department of
Primary Industries

NSW water storages at 44%

NSW water storages are at 44.6% capacity, down 4.6% compared with this time last year.

<http://water.bom.gov.au/waterstorage/awris/#urn:bom.gov.au:awris:common:codelist:region.state:newsouthwales>



National water accounts 2013-14

The Murray–Darling Basin accounted for 80% of all water used in Australia’s nine water account regions in 2013-14, with the water used mainly for irrigated agriculture. Surface water accounted for 84% of water used across the nine regions, while groundwater accounted for a further 15%. Other sources, including desalinated water, contributed just over 1% of the volume used. Adelaide and Perth relied on desalinated water for almost 40% of their urban supplies.

<http://www.bom.gov.au/water/nwa/2014/>

Stakeholder views of water extraction in NSW

A survey of NSW water stakeholders found widespread support for regulating water extraction and tougher enforcement action against those who break the rules. Most respondents are motivated to comply with rules by social pressure and personal values. Support for metering increases with more direct experience but there are concerns about the costs and practicalities of implementation. There is a desire for more information on compliance and enforcement issues, as well as water management more generally.

http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/564171/Water-extraction-in-NSW-stakeholder-views-of-compliance-and-enforcement-survey-report.pdf

Data for 55,000 groundwater bores

The Australian Groundwater Explorer now has water level data for more than 55,000 bores around the country.

<http://www.bom.gov.au/water/groundwater/explorer/>

Climate Resilient Water Sources

Climate Resilient Water Sources is a new online tool capturing information on more than 350 recycled and desalinated water sources in Australia. Users can search information on capacity, production, location and use of these sources in their local area.

Right: Recycled water sites in NSW

<http://www.bom.gov.au/water/crews/>



MDB Plan and climate change

A major review of the risks of climate change in the Murray Darling Basin is likely within the next seven years. Australian water scientists have raised concerns about the modelling used in the MDB Plan because it does not take into account lower average rainfall patterns and more frequent and severe droughts predicted by climate models. A 10 per cent reduction in rainfall can result in 60 or 70 per cent reduction in the amount of water available for use.

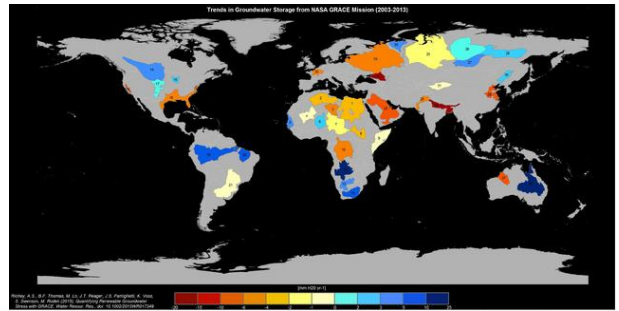
<http://www.abc.net.au/radionational/programs/breakfast/climate-review-promised-after-dispute-with-top-water-scientists/6547394>

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Global groundwater stress

US studies of global groundwater aquifers have found that eight are overstressed, with minimal natural replenishment, and another five are extremely or highly stressed. Very little is known about remaining groundwater levels. The Arabian Aquifer System is the most overstressed followed by the Indus Basin aquifer and the Murzuk-Djado Basin in northern Africa.

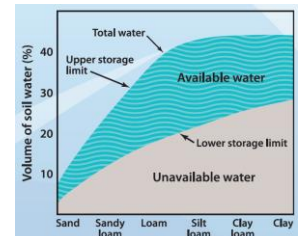
<http://news.uci.edu/press-releases/a-third-of-the-worlds-biggest-groundwater-basins-are-in-distress/>



Water availability fact sheet

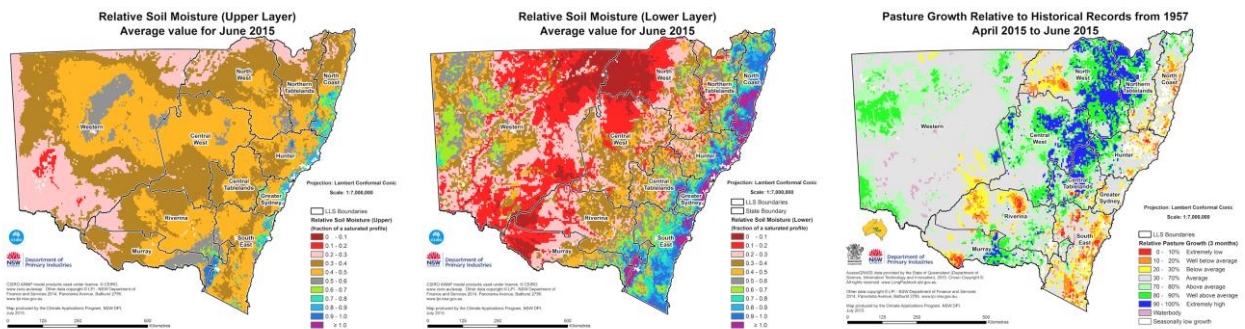
soilquality.org.au has produced a fact sheet on soil water that explains water holding capacity, available water and wilting point in different soil types.

<http://soilquality.org.au/factsheets/water-availability>



SOILS

NSW soil moisture and pasture growth for June



<http://www.dpi.nsw.gov.au/agriculture/emergency/seasonal-conditions/regional-seasonal-conditions-reports/seasonal-conditions/june-2015>

Soil organic carbon and nitrous oxide interactions

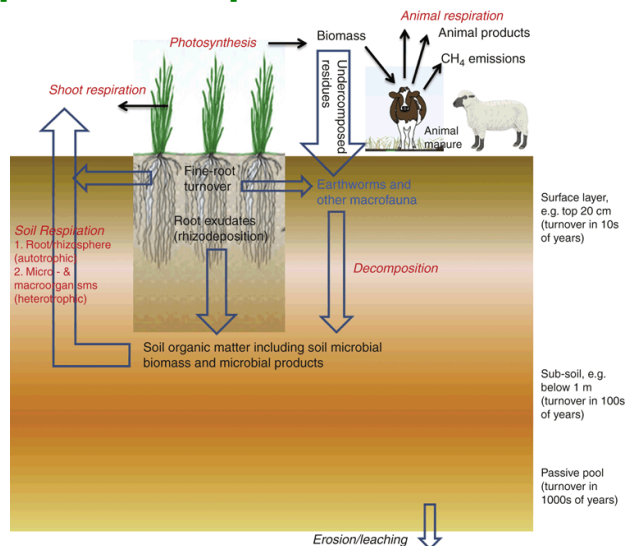
National research into the impact of increased soil organic carbon levels on nitrous oxide emissions, grain yield and grain quality found higher grain yield and quality and a small increase in emissions in WA. N₂O emissions measured in the medium rainfall zone in the Wimmera were also low, only slightly higher than the WA emissions at 0.15% of N fertiliser applied. In Victoria's high-rainfall zone where background levels of soil organic carbon and rainfall are much higher, N₂O emissions were also much higher, ranging from 0.3 to 1% per cent of the nitrogen fertiliser applied.

<http://www.extensionaus.com.au/soil-carbon-and-emissions-in-australian-grains-soils/>

Carbon sequestration under permanent pastures

Soils under a range of pasture types have considerable potential for carbon sequestration in Australia according to a recent Tasmanian review. Prevention of erosion through maintenance of groundcover and adoption of options that promote deep C sequestration are likely to maintain or increase SOC in pasture soils over a decade or longer. However, confidence in the recommended practices in different locations and climates is largely unknown.

<http://www.publish.csiro.au/nid/84/paper/SR14062.htm>



Erosion contributes to carbon losses

Analysis of 240 runoff plots from different regions of the world found that organic carbon losses from soils corresponds to about one-sixth of annual fossil fuel-induced carbon emissions, with highest rates for semi-arid soils, followed by tropical soils and temperate soils. The organic carbon lost from soils is more likely to reach the atmosphere under semi-arid sandy soils of weak structure compared to clayey tropical or temperate soils where organic matter is more protected.

<http://onlinelibrary.wiley.com/doi/10.1002/esp.3758/abstract>

Converting pasture to crops reduces CEC

A NZ study has found that eight years after conversion of long-term pasture to arable cropping, cation concentrations in the top 25cm of soil declined significantly, but were unaffected by tillage type. Cultivation of grassland is known to lead to the depletion of organic matter but the effect on soil chemical functions, including cation retention, has not been well documented.

<http://www.publish.csiro.au/nid/84/paper/SR14173.htm>

Cover crops create more complex soil aggregates

A comparison of soils grown with bare fallow and cover crops since 1989 found that the aggregates from soil in the cover crop system were more complex and varied in their interior pore structures with more large and medium-sized pores. The fallow aggregates had more small pores spread more evenly through the aggregate. Interestingly, microbial communities living in individual aggregates within the same system did not look very much alike, indicating that conditions within the aggregate determine the type of community. These conditions include transport of nutrients, fluxes of air and water, and ability of bacteria to reach and decompose plant residues.

<https://www.agronomy.org/science-news/tale-two-soil-cities>

Crop rotations change microbial communities

A US study has found that crop rotations, in isolation from other management factors, can increase the functions performed by soil microbial communities that benefit plant growth and lead to long-term land sustainability. Researchers found that increasing rotational diversity changed microbial community structure and activity, with positive effects on aggregate formation and soil organic matter.

<http://research.msu.edu/crop-rotation-study-shows-positive-impact-on-long-term-land-sustainability/>

Soil, big data and the future of agriculture

This one day workshop held in Canberra last month discussed the rapid advances in big data analytics in soils and agriculture, and also covered farm data privacy and security, and remote and rural access to broadband capacity.

<http://soilbigdata.org/event>

The valuable role of Dust Watch

The dust storm that hit NSW in 2009 was estimated to cost the state's economy around \$300 million, so the Community DustWatch project plays an important role in monitoring the rise of dust in dry times. Local residents use solar-powered aerosol-monitoring instruments and determine whether the aerosols are dust, smoke or fog.

<http://csironewsblog.com/2015/06/18/stop-the-dust-how-were-avoiding-mad-maxs-fury-road/>

Recycled organics grants

Grants are available under the EPA's Waste Less Recycle More program to develop product quality and markets for recycled organics diverted from landfill.

<http://www.epa.nsw.gov.au/wastegrants/organics-market.htm>

BIODIVERSITY

Bitterns in rice website

The bitterns in rice project has launched its website. People from around the world are following the journey of 'Robbie', the first Australasian bittern to be satellite-tracked. His initial dispersal from the New South Wales Riverina was 557 kilometres to a restored coastal wetland in South Australia. Just three months earlier, he was an egg in a rice crop.

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



Plan to protect native animals from feral cats

The Federal Government is developing a threat abatement plan to protect native animals from feral cats which are recognised as a potential threat to 59 mammals, 40 birds, 21 reptiles and four amphibians listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999.

<http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/draft-feral-cats-2015>

Helping farmers practice pest control

A new guide from the Invasive Animals CRC and UNE explains how to empower farmers and land managers to adopt new approaches for best practice pest animal control. It covers behaviour change drivers and barriers, and design and delivery of cost-effective communication programs.

<http://www.pestsmart.org.au/behaviourally-effective-communications-for-invasive-animals-management/>

Wild bees have crucial pollination role

An international study on bee pollination has found that two percent of wild bee species pollinate 80 percent of bee-pollinated crops worldwide. Three years of regular monitoring found nearly 74,000 individual bees from nearly 785 wild bee species on crops. Of 20,000 known bee species, roughly two percent pollinated 80 per cent of crops. The study calculates the value of wild bee pollination to the global food system at \$3000 per hectare of insect-pollinated agricultural land. This means that wild bees' agricultural value is similar to that of honey bees, no longer considered wild in many regions due to their intense management. The paper outlines bee-friendly practices for farmers, including maintaining wildflowers and grass strips, organic farming techniques, and limiting or delaying the use of pesticides and other chemicals.

<http://www.uvm.edu/~uvmpr/?Page=news&&storyID=21029>

Honeybee stewardship program

The Mississippi Honeybee Stewardship Program outlines cooperative standards for farmers and beekeepers. Practices include farmers helping choose hive locations where pesticide drift is less likely to occur, avoiding spraying when bees are active, and taking special precautions when near beehives. The program also promotes use of black and yellow flags near beehives to promote awareness.

http://www.msfb.org/public_policy/Resource%20pdfs/Bee%20Brochure.pdf

FOOD

Climate change and food systems

This FAO report describes how global warming will affect where and how food is produced, and it discusses the significant consequences for food security, health and nutrition, water scarcity and climate adaptation. The report also highlights the implications for global food trade and makes some policy recommendations.

<http://www.fao.org/3/a-i4332e.pdf>

Insurance impacts of food supply disruption

Insurance company Lloyd's says the ability of the global food system to achieve food security is under significant pressure due to factors such as climate change, water stress, ongoing globalisation, and heightening political instability. The report underlines the pressing need to reduce the uncertainty surrounding the impacts of an extreme shock to the food supply.

http://www.lloyds.com/~media/files/news%20and%20insight/risk%20insight/2015/food%20system%20shock/food%20system%20shock_june%202015.pdf

Food systems reform

The International Panel of Experts on Sustainable Food Systems is a new transdisciplinary initiative to support, inform and advise the policy debate on how to reform food systems across the world. It has produced its first report on overcoming barriers to food systems reform.

http://www.ipes-food.org/images/Reports/IPES_report01_1505_web_br_pages.pdf

Framework for assessing food systems

The US National Academy of Sciences says the challenges of improving the food system in the 21st century will require systemic approaches that take full account of social, economic, ecological, and evolutionary factors. Policy-makers and other stakeholders must move beyond considering health, environmental, social and economic effects in isolation. The NAS report has been the subject of briefings to Congress and US agencies.

<http://www.nap.edu/catalog/18846/a-framework-for-assessing-effects-of-the-food-system>



Food systems talks

This website provides a series of open access online talks to provide an overview of the complex and multidisciplinary nature of our food systems.

<http://www.foodsystemsacademy.org.uk/>

Urban agriculture in Australia

Future Directions International says urban agriculture presents an opportunity to support domestic food security, but scope to develop these food systems needs to be part of the urban design and planning processes. Regular networking and knowledge transfer is required, involving rural and urban farmers and regulation bodies to ensure coordinated, timely and efficient responses to biosecurity threats.

<http://www.futuredirections.org.au/publications/food-and-water-crises/2287-localising-food-production-urban-agriculture-in-australia.html>

Inquiry into food certification

The Senate Economics References Committee is calling for submissions on third party certification of food such as organic, kosher, halal and genetically-modified food and general food safety certification schemes. Submissions close 31 July 2015.

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Food_Cert_Schemes/Terms_of_Reference

Macleay Valley Food Bowl

The Food Bowl aims to provide Macleay Valley agribusiness with news, information and contacts to stimulate supply and demand for food produced in the NSW Macleay Valley.

<http://macleayvalleyfoodbowl.com.au/>

Australian food production quiz

Australian fresh food production is valued at more than \$42 billion annually and contributes millions of export dollars to the Australian economy. ABC Rural has developed this short quiz to test your knowledge of Australian food production.

<http://www.abc.net.au/news/2015-05-27/quiz-10-things-to-know-about-australian-food-production/6481224>

LAND USE

Review of State Environmental Planning Policies

The NSW Government is inviting feedback on the review of a number of State Environmental Planning Policies with a view to reducing the number of SEPPs, integrating planning policy in relevant local plans, and reduce red tape. The protections in these SEPPs have either been implemented elsewhere in the NSW planning system or will be amended and transferred to a local plan or another SEPP.

http://planspolicies.planning.nsw.gov.au/index.pl?action=view_job&job_id=6839

Tax rules change for foreign land investors

From 1 July 2015 all foreign investors who hold interests in agricultural land must register those interests with the Australian Taxation Office regardless of the value of that land. The ATO will collect information such as the location and size of property and size of interest acquired on new foreign investment in agricultural land to develop a national register. This data will be made available to the public from 2016.

<http://jbh.ministers.treasury.gov.au/media-release/066-2015/>

SUSTAINABILITY

Nature as capital

PNAS journal has published a special feature on natural capital with several papers outlining how governments, organizations and corporations are moving away from short-term exploitation of the natural world and embracing a long-term vision of nature as capital – the ultimate world bank upon which the health and prosperity of humans and the planet depend.

http://www.pnas.org/cgi/collection/nature_capital

FarmDiversity.com.au

RIRDC has established this website to help farmers research enterprises suitable for their farm. The website covers all crops and animals with commercial potential in Australia.

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

The role of agroecology in sustainable intensification

Three of the best documented approaches to agroecology – integrated crop/farm management, organic farming and agroforestry – are assessed for productivity, energy use and greenhouse gas emissions, biodiversity and related ecosystem services, soil and water conservation, and profitability.

<http://www.snh.gov.uk/docs/A1652615.pdf>

Reinvent the toilet

The winner of the Bill & Melinda Gates Foundation's 'Reinvent the Toilet' challenge back in 2012 is being rolled out in three locations around the world. The toilet transforms sewage into sterilised water, and turns the byproducts of the water sterilising process into useable hydrogen and fertiliser.

<http://www.sciencealert.com/the-gates-backed-toilet-of-the-future-is-now-being-trialled-in-india-and-china>

EVENTS

July 7-10	National Carbon Farming Conference Expo, Albury carbonfarmingconference.com.au
July 14	Agriculture and environment research symposium, Sydney “ Uta.stockmann@sydney.edu.au
July 15-17	Australian Meteorological and Oceanographic Society conference, Brisbane http://www.amos.org.au
July 23-24	Current issues for soil science. Moree woodlots3@bigpond.com
September 1-3	NSW Landcare Muster and Conference, Orange http://nswlandcareconference.com.au/
September 7-9	WA Soils Conference, Mandurah http://www.soilscienceaustralia.org/component/content/category/43-wa-state-conference-blog?layout=blog
September 20-24	17th Australian Agronomy Conference Hobart http://www.agronomy2015.com.au/index.html
Nov 7-8	National Biological Farming Conference and Expo, Lismore NSW http://www.soilcare.org/national-biological-farming-conference-and-expo-2015.html
Nov 10-13	NSW Coastal Conference, Forster http://www.coastalconference.com/
Nov 30-Dec 2	Bioenergy Australia 2015, Launceston http://www.bioenergyaustralia.org/
July 5-7 2016	Climate Change Adaptation 2016 Conference, Adelaide http://climate-adaptation.org.au/events/climate-adaptation-2016/

SUBSCRIBE

NRM on Farms is a monthly newsletter that summarises recent information about climate and natural resource management relevant to agriculture to keep farmers and agricultural and NRM advisors and researchers up to date. It is freely available to anyone interested or involved in agriculture or NRM. To subscribe, email Rebecca Lines-Kelly at rebecca.lines-kelly@dpi.nsw.gov.au.