

NRM on farms



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

August 2017

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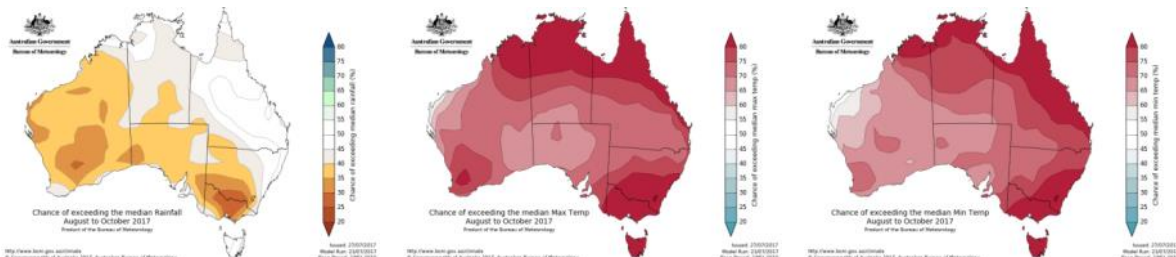
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CLIMATE

Outlook for NSW: Dry and warm



The next three months are likely to be drier and warmer than average, due mainly to more localised influences such as moderate shifts in the location and strength of the subtropical ridge, local sea surface temperatures and soil moisture levels.

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

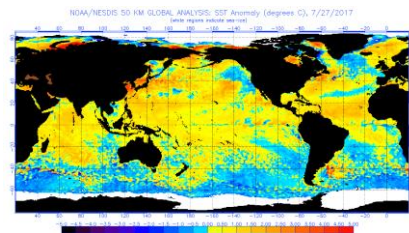
<http://www.bom.gov.au/climate/outlooks/#/overview/video>

Ocean temperatures slightly warm

Temperatures are slightly warmer than average across most of the equatorial Pacific and south of the equator, including around Australia.

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

<http://www.bom.gov.au/climate/enso/#/tabs=Sea-surface>



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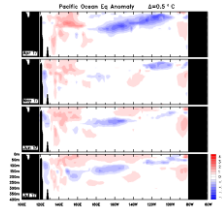


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Subsurface temperatures are average

The four-month sequence of sub-surface temperature anomalies shows water temperatures in the sub-surface were generally near average.

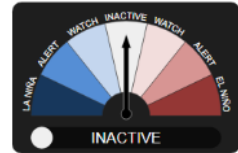
<http://www.bom.gov.au/climate/enso/>



ENSO is inactive

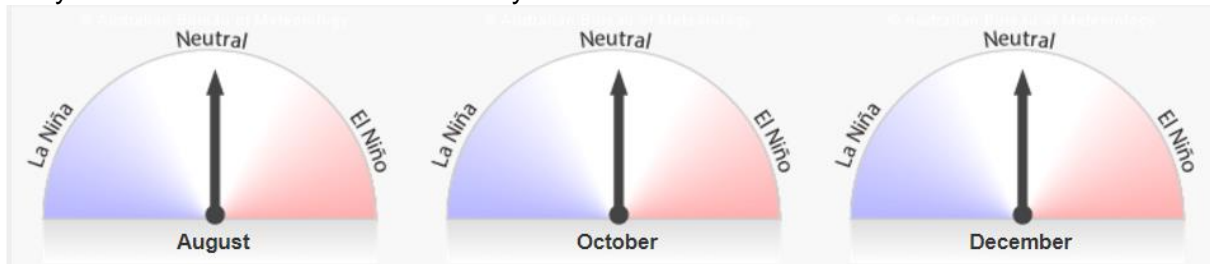
The ENSO outlook is currently inactive, with little sign of El Niño or La Niña developing in coming months.

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



El Niño models opt for ENSO neutral

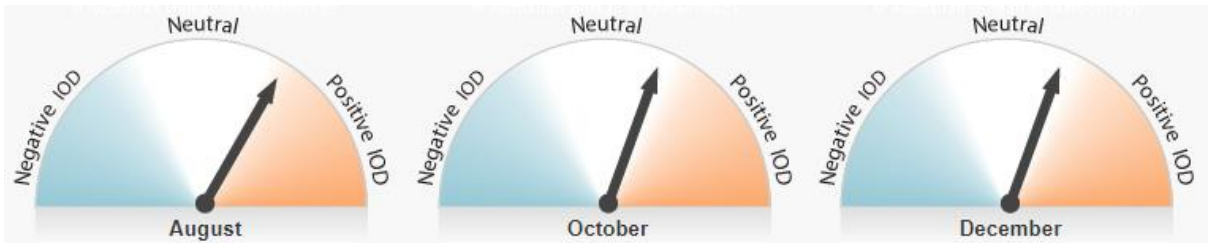
All eight climate models used by BoM suggest that sea surface temperatures in the tropical Pacific Ocean will fall short of El Niño thresholds in 2017 with ENSO-neutral as the most likely outcome for the remainder of the year.



<http://www.bom.gov.au/climate/model-summary/>

IOD models mainly neutral

The Indian Ocean Dipole is currently neutral. Two out of six models meet positive IOD thresholds in August, but only one model persists through to October. A positive IOD is typically associated with below average winter-spring rainfall over southern and central Australia.

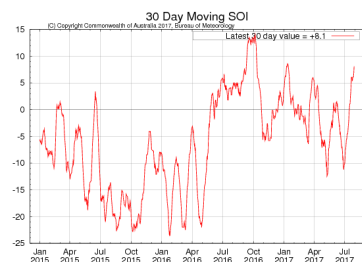


<http://www.bom.gov.au/climate/enso/#tabs=Indian-Ocean>

SOI

After a sharp dip in in June/July, the 30-day SOI has returned to neutral range. 90-day SOI values have remained neutral all year.

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



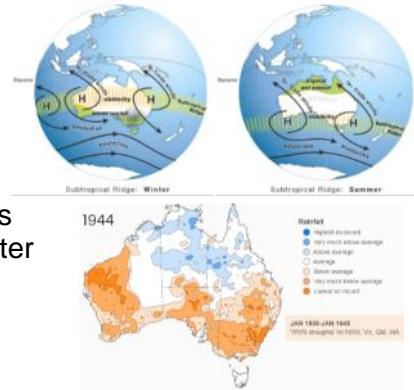
BoM introduces mid-month climate outlooks

BoM begins mid-month climate outlooks this month which will mean an updated outlook every 2-3 weeks.

www.bom.gov.au

Sunny, chilly and dry: Subtropical ridge stays south

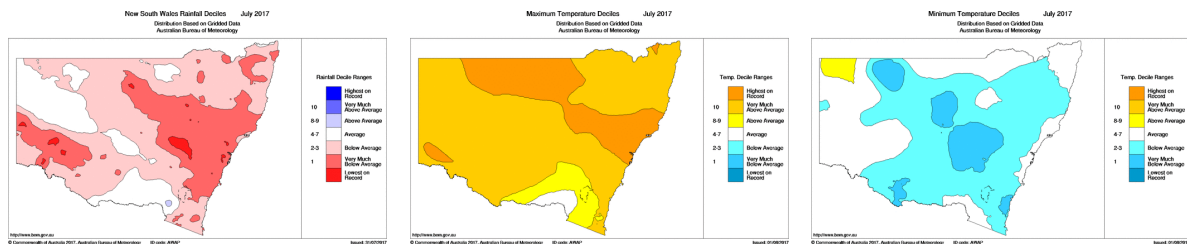
The subtropical ridge is a belt of high pressure systems that circles the southern hemisphere mid-latitudes, and is a dominant influence on Australia's climate. At this time of year it should be sitting near Tamworth, allowing cold fronts and low pressure systems to move up from the Southern Ocean so that winter westerlies can bring rainfall to southern Australia. However it is sitting near Albury where it is blocking the cold fronts and allowing high pressure system after high pressure system, bringing clear, dry days. It's also the strongest system since 1944, when NSW experienced major drought.



<http://www.bom.gov.au/climate/updates/articles/a025.shtml>

<http://www.abc.net.au/news/2014-02-26/100-years-of-drought/5282030>

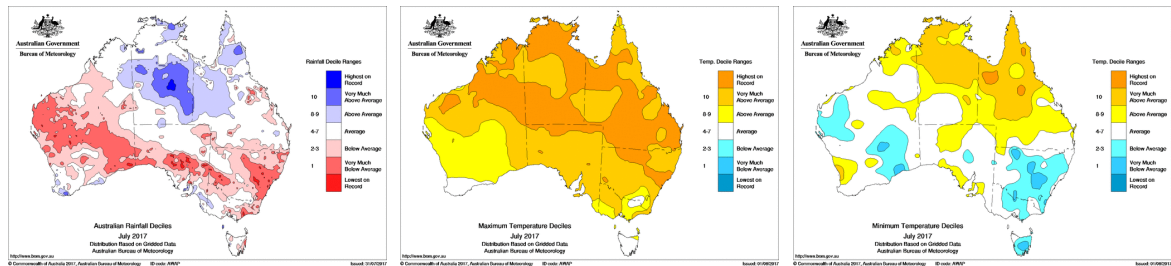
NSW: Driest, warmest and coldest July since 2002



Last month NSW had its driest July, warmest July daytime temperatures and coldest July minimum temperatures since 2002. It was the second-warmest July on record.

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

Australia in July



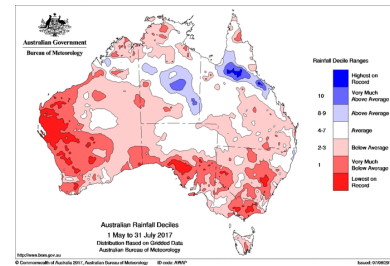
Australia experienced its warmest July maximum temperatures on record, along with Queensland, NT and WA. Minimum temperatures were warm in the north, but frosty in the southeast and Tasmania. Southern Australia rainfall was well below average.

<http://www.bom.gov.au/climate/current/month/aus/summary.shtml>

Drought areas

After the exceptionally dry June across Australia (the second-driest June on record for the country as a whole) and below average July rainfall, the first half of the southern wet season (April to November) has been very dry over large parts of eastern and southwestern Australia. Large parts of NSW are showing up as very much below average.

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



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>

GLOBAL CLIMATE

2015 average temperatures are 2040 new normal

Analysis by Australian climate scientists suggests that 2015's record-breaking global annual-average temperatures will be the new normal by 2040. At the regional level, a new normal can be delayed through aggressive greenhouse gas emissions reductions.

<http://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-16-0183.1>

El Nino events likely to double

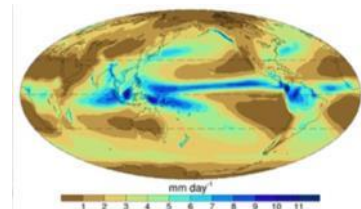
A new paper from Nature Climate Change says extreme El Nino events will more than double in frequency, even with the most ambitious goals to curtail global warming, exposing large regions to severe droughts and placing coral reefs in peril.

<http://www.smh.com.au/environment/climate-change/extreme-el-nino-events-to-double-in-number-even-with-15degree-warming-study-20170720-qxfmwl.html>

Fossil fuel aerosols are changing rainfall

A new study has found that aerosol particles released into the atmosphere from burning fossil fuels are a primary driver of changes in rainfall patterns across the globe. The largest shift in rainfall patterns will occur over the tropics.

<http://www.rsmas.miami.edu/news-events/press-releases/2017/man-made-aerosols-identified-as-driver-in-shifting-global-rainfall-patterns/>



Extreme weather and climate change

The UK climate news site CarbonBrief has mapped 144 extreme weather events across the globe for which scientists have carried out attribution studies. Yellow symbols indicate that the attribution study found climate change had played a role in that event.

<https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world>



Monsoon may revive as land warms

A weakening land-ocean temperature difference, owing to a rapidly warming Indian Ocean, has seen the Indian monsoon trend downward since the 1950s. New research gives hope for a revival in monsoon rainfall as land warming catches up with, and exceeds, ocean warming. http://www.nature.com/nclimate/journal/v7/n8/full/nclimate3356.html?WT.feed_name=subjects_hydrology

Sea temperatures related to droughts

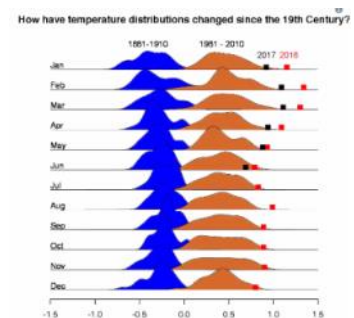
New research suggests fluctuations in sea surface temperatures are a factor in causing persistent droughts in US and Mediterranean regions. Ocean temperatures are correlated with increases in land temperature variability, and persistence of extreme temperatures. The researchers also found that a long heatwave can have greater impacts on human mortality than the sum of individual hot days, and multi-year droughts can have greater agricultural economic impacts than the sum of individual dry years.

http://www.exeter.ac.uk/news/research/title_595444_en.html

Global temperature movement

The website Real Climate has compiled an animated graph showing how global monthly temperature distributions have changed since the 19th century.

<http://www.realclimate.org/index.php/archives/2017/07/joy-plots-for-climate-change/>



Vital signs of the planet

This NASA website provides brief statistics and news on global climate change.

<https://climate.nasa.gov/>

A century of global warming by country

This new video shows the rhythm of global warming for countries around the world, from Afghanistan to Zimbabwe. Bars representing each country's annual average temperature anomaly pulse up and down.

<http://www.climatecentral.org/news/history-global-warming-animation-21670>

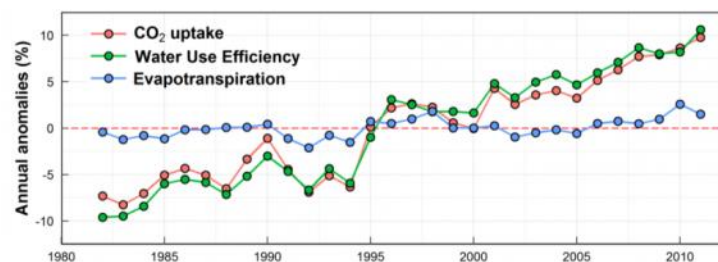


CLIMATE IMPACTS

Plants absorbing more carbon without more water

Land plants are absorbing 17% more carbon dioxide from the atmosphere now than 30 years ago, and the plants are hardly using any extra water to do it, suggesting that global change is causing the world's plants to grow in a more water-efficient way.

<https://theconversation.com/rising-carbon-dioxide-is-making-the-worlds-plants-more-water-wise-79427>



Climate stress accounts for 40% variation in wheat yields

European analysis of 30 years of climate and wheat yields has found that heat stress concurrent with drought or water excess can explain about 40% of the changes in wheat yields from one year to another.

<https://www.sciencedaily.com/releases/2017/07/170704094104.htm>

Climate threatens maize production and food security

Maize production across China and US accounts for almost 60% of global production. Adverse growing conditions in these concentrated areas could have a considerable impact on global food security. A UK study has found adaptation plans and policies based solely on observed events from the recent past may considerably underestimate the true risk of climate-related maize shocks.

<http://www.metoffice.gov.uk/research/news/2017/exploring-the-risk-of-simultaneous-crop-failures>

Technology and management reduces drought impacts

Modelling of US droughts in 1988 and 2012 show that changes in agricultural technologies and management have reduced system-level drought sensitivity in US maize production by about 25% in the intervening years.

<http://www.sciencedirect.com/science/article/pii/S0308521X16306643>

Insects hitch a ride on convection currents

Rothamsted and US research into weather data reveals how crop pests hitch rides on convection currents. The insects rise in updrafts but at a slower speed than the surrounding air, and fall freely in downdrafts, often faster than the surrounding air. These findings will help scientists predict when and where pests will strike next.

<https://www.rothamsted.ac.uk/news/lazy-hitchhiker%E2%80%99s-guide-insect-flight>

CLIMATE TOOLS

Australia needs more climate scientists

The Academy of Science's climate science capability review has called for more climate scientists, particularly in climate modelling. Modelling provides the only tool to predict climate variability and change, provide future climate scenarios (for differing emission trajectories), and provide detailed local information. Improving the accuracy of seasonal forecasting has been estimated to be worth over \$1.5 billion per annum to the agricultural sector. At longer time scales, improvements to climate projections (for example, 10–30 year predictions of drought frequency) could be a distinct competitive advantage for Australian farmers and primary producers

<https://www.science.org.au/files/userfiles/support/reports-and-plans/2017/climate-science-capability-review-2017.pdf>

Birchip Cropping Group's pilot weather station project

Birchip Cropping Group's pilot weather station project collects, stores and delivers rainfall, temperature, humidity and wind data direct to growers' smartphones, 24 hours a day. For weather station owners, data from the stations is already starting to assist operations.

<http://www.bcg.org.au/farmers-reaping-weather-station-data-rewards/>

CliMate tool updated

The climate tool Australian CliMate has been updated to include potential yield based on water use efficiency, rapid assessment of drought status, and trends in weather variables. The existing seven analyses have enhanced flexibility and functions.

<https://climateapp.net.au/>

Strategy on climate, health and well-being for Australia

The Climate and Health Alliance has developed a framework for this strategy after a year of consultation to identify stakeholders' priorities and concerns. It prescribes policy directions for a range of portfolios, including energy, climate, environment, transport, and infrastructure.

<http://www.caha.org.au/national-strategy-climate-health-wellbeing>

FAO strategy on climate change

The guiding principles for FAO's new strategy are: Give precedence to food security, poverty reduction and sustainability; leave no one behind; support policy integration and mainstreaming; promote evidence-based scientific approaches; promote ecosystem-based approaches; learn from experience; lead by example; and measure and evaluate impact.

<http://www.fao.org/3/a-i7175e.pdf>

Barriers to adoption of climate friendly farming practices

This OECD publication identifies many potential barriers, some associated with farm-level constraints, others operating at the sector level, or created by existing policies. A series of recommendations are made to properly identify these types of barriers and to select the right instruments to implement effective policy solutions.

http://www.oecd-ilibrary.org/agriculture-and-food/overcoming-barriers-to-the-adoption-of-climate-friendly-practices-in-agriculture_97767de8-en

Climate-ready revegetation

This guide helps natural resource managers consider regional climate projections, suitable plant species, and seed provenance when revegetating areas.

http://anpc.asn.au/resources/climate_ready_revegetation

Developing usable climate science for agriculture

This special Issue of Climate Risk Management presents the results of a six year US project in the US Midwest to develop useful climate tools for corn growers. The website also contains the results.

<http://www.sciencedirect.com/science/journal/22120963/15/supp/C?sdc=1>

<https://mygeohub.org/groups/u2u>

Drawdown: solutions to global warming

This book documents the findings of Project Drawdown. The 100 solutions are ranked by the number of gigatons of CO₂, or equivalent, that they would avoid or sequester between 2020 and 2050. They range from refrigerant management, wind turbines, and food waste to methane digesters, green roofs, and microgrids.

<http://www.drawdown.org/solutions>

Rank	Solution
1	Refrigerant Management
2	Wind Turbines (Onshore)
3	Reduced Food Waste
4	Plant-Rich Diet
5	Tropical Forests
6	Educating Girls
7	Family Planning
8	Solar Farms
9	Silvopasture
10	Rooftop Solar
11	Regenerative Agriculture
12	Temperate Forests
13	Peatlands
14	Tropical Staple Trees
15	Afforestation
16	Conservation Agriculture

7



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Priorities for natural hazards emergency management

The Bushfire & Natural Hazards CRC has published a number of publications on its new national research priorities for natural hazards emergency management.

<http://www.bnhcrc.com.au/nationalpriorities>

Guidelines for prescribed burning

The National Burning Project has released national best practice guidelines for prescribed burning, along with step-by-step guides for planning and undertaking prescribed burning, and risk management look-up charts.

<http://www.afac.com.au/auxiliary/publications/newsletter/article/ready-to-use-guides-from-the-national-burning-project>

Local government progress on climate change

This report introduces the Climate Council's Cities Power Partnership program which highlights councils and communities switching to renewable energy and building greener, more efficient and resilient communities.

<https://www.climatecouncil.org.au/cpp-report>

EMISSIONS

Boosting productivity by reducing emissions

Research findings from the Australian government's Carbon Farming Futures (CFF) program 2012-17 are now available online. The publication summarises findings from a range of projects, identifies key growth opportunities and constraints that farmers will face over the coming decades, while showing how farmers can boost productivity and profitability, improve soil and reduce greenhouse gas emissions.

<http://www.agriculture.gov.au/ag-farm-food/climatechange/carbonfarmingfutures>

How we account for agricultural emissions/

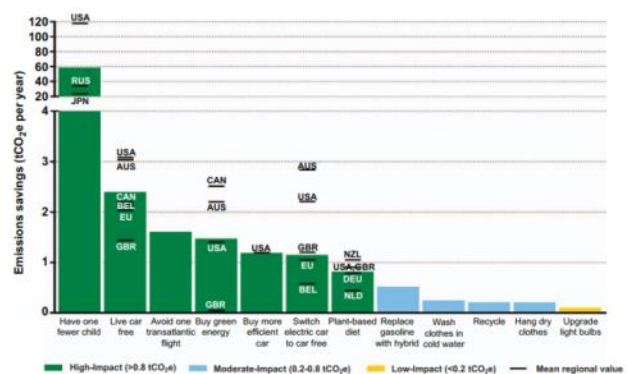
This article from WA Dept of Agriculture and Food outlines agricultural emissions accounting in Australia.

<https://www.agric.wa.gov.au/climate-change/how-australia-accounts-agricultural-greenhouse-gas-emissions>

High impact actions to reduce emissions

A recent comparison of emissions reductions from individual actions concludes that there are four high-impact actions with the potential to substantially reduce annual personal emissions: having one fewer child, living car-free, avoiding airplane travel, and eating a plant-based diet. These actions have much greater potential to reduce emissions than commonly promoted strategies such as recycling.

<http://iopscience.iop.org/article/10.1088/1748-9326/aa7541/pdf>



SOILS

Sequestering soil organic carbon: a nitrogen dilemma

In this short perspective piece, researchers from the Netherlands, USA and the UK critically assess the COP21 4 per 1000 initiative, which seeks to increase global yearly agricultural soil organic carbon sequestration by 0.4%, or 1.2 billion tonnes. The authors argue that as soil organic matter also contains nitrogen, with a C-to-N ratio always approaching 12, this will require the sequestration of an extra 100 million tonnes of N per year, and they question the feasibility of achieving this.

<http://pubs.acs.org/doi/abs/10.1021/acs.est.7b01427>

Restoring plant diversity restores soil microbe diversity

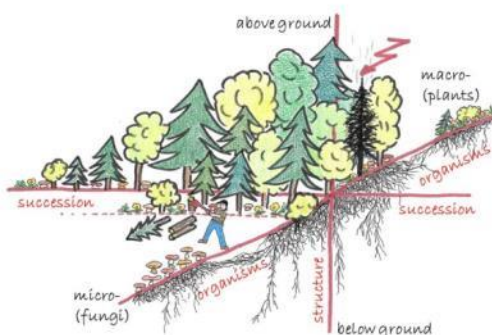
A US study of prairie restoration has found that re-establishment of diverse native plant communities, has resulted in diverse bacterial communities recolonising the soils to closely resemble bacterial diversity in untouched prairie soils.

<https://www.sciencedaily.com/releases/2017/07/170720103131.htm>

Plant diversity protects against landslides

Swiss research has found that soil stability can be improved long-term with relatively little input. Modified forest management practices and diverse vegetation can play an especially significant and cost-effective role.

http://www.slf.ch/dienstleistungen/news/Hangrutschungen/index_EN



NSW OEH Land and soil website

Learn about soil types and remediation programs, and understand the challenges of soil degradation.

<http://www.environment.nsw.gov.au/topics/land-and-soil>

Soil and society fact sheets

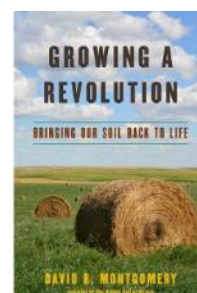
The International Union of Soil Sciences has published a number of fact sheets on soil in relation to society. Recent additions include soil and food security, soil governance and perception of soil by society.

http://iuss.boku.ac.at/index.php?article_id=647

Bringing our soil back to life

This new book by David Montgomery introduces us to farmers around the world to show that a new combination of farming practices can deliver innovative, cost-effective solutions to problems farmers face today.

<http://www.elliottbaybook.com/book/9780393608328>



The role of soil biology in crop nutrition

This review from the UK Game and Wildlife Conservation Trust provides a good general introduction to soil biota and their activities in the soil.

<https://www.agricology.co.uk/resources/organic-matter-macro-micro-fauna-crop-nutrition-fertility-building/role-soil-biology-crop>

WATER

Review of Australian water utilities reform

A World Bank funded review of water reform processes in Australia features a detailed case study on NSW. The review explores the key success factors in the reform of urban water supply services from which relevant lessons can be drawn for other countries.

<https://openknowledge.worldbank.org/handle/10986/27532>

Pillars of the Plan

This article from The Conversation reiterates the four main principles of the MDB Plan.

<https://theconversation.com/is-the-murray-darling-basin-plan-broken-81613>

Shifting water scarcity

A Nature Communications study has found that reservoirs, dams and irrigation systems have shifted global patterns of water scarcity in the past 40 years, increasing water availability for much of the global population, but also creating downstream scarcity.

<https://www.nature.com/articles/ncomms15697>

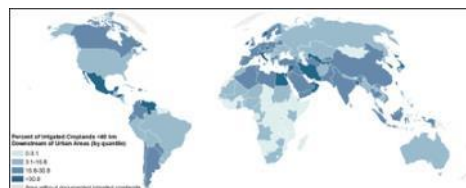
Global wastewater irrigation

A global study of wastewater irrigation has found that 65% (35.9 Mha) of downstream irrigated croplands were located in catchments with high levels of dependence on urban wastewater flows. These same catchments were home to 1.37 billion urban residents.

Of these croplands, 29.3 Mha were located in countries with low levels of wastewater treatment and home to 885 million urban residents.

<http://iopscience.iop.org/article/10.1088/1748-9326/aa75d1/meta;jsessionid=7DB84E40C3473AA227160B0050E2A9EB.c1.iopscience.cld.iop.org>

[9326/aa75d1/meta;jsessionid=7DB84E40C3473AA227160B0050E2A9EB.c1.iopscience.cld.iop.org](http://iopscience.iop.org/article/10.1088/1748-9326/aa75d1/meta;jsessionid=7DB84E40C3473AA227160B0050E2A9EB.c1.iopscience.cld.iop.org)



BIODIVERSITY

Alternative crop sequences deliver results

GRDC research has found that crop sequences involving alternative crops such as canola, faba bean and durum wheat have achieved higher system water use efficiency and nutrient use efficiency than baseline systems.

<https://grdc.com.au/news-and-media/news-and-media-releases/north/2017/07/alternative-crop-sequences-deliver-results>

Benefits of increasing plant diversity in agroecosystems

This international review has found consistently strong evidence that strategically increasing plant diversity increases crop and forage yield, wood production, yield stability, pollinators, weed suppression and pest suppression, whereas effects of diversification on soil nutrients and carbon remain poorly understood.

<http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.12789/full>

The nature of landscapes

This UK study found that modifying crop management, increasing crop diversity, and increasing landscape complexity are all changes that are likely to benefit wildlife and landscape, but the farming systems and approaches to achieve this are very different.

<https://www.gwct.org.uk/blogs/allerton-project-research-blog/2017/july/the-nature-of-landscapes/>

Study finds pesticide reduction can maintain yield

A study of pesticide use in France found that 77 percent of the farms in the study showed no conflict between using smaller amounts of pesticide and yield rates. The remaining 23 percent of the farms were generally associated with industrial farming. The researchers contend that their analysis also showed that approximately 59 percent of all farms in France could reduce their use of pesticides by approximately 42 percent without harming yields.

<https://phys.org/news/2017-02-crops-france-pesticides.html>

Importance of long term monitoring

This article by ecologist David Lindenmeyer outlines five reasons why long term monitoring is important in large-scale restoration programs across farming landscapes. Long-term monitoring is built on good design, provides evidence for decision-making, is adaptable, needs partnerships, and is most effective where it is complemented by other value frames (such as economics).

<http://decision-point.com.au/article/five-things-about-long-term-monitoring/>

Ants dominate rainforest recycling

A UK study has found that ants are responsible for moving more than half of food resources from the rainforest floor, including dead animal bodies, seeds and fruits. The rest was removed by mammals, birds and other vertebrates and invertebrates.

<https://www.sciencedaily.com/releases/2017/08/170809214055.htm>

Simple structures can build wild bee numbers

A German study has found wild bee numbers can be increased sustainably using simple structures such as the one pictured here. Wild bees are important pollinators of many crop plants.

<https://www.sciencedaily.com/releases/2017/07/170720095304.htm>



Ecological solutions to food security

The journal of Ecology has published a special issue on ecological solutions to global food security.

<http://besjournals.onlinelibrary.wiley.com/hub/issue/10.1111/jec.2017.105.issue-4/>

Bowerbird nature observations

Bowerbird is a citizen science website where people share and discuss Australia's biodiversity. You can post images, videos and sounds, set up your own projects, and help identify others' postings.

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



NSW Biosecurity Act 2015

The NSW Biosecurity Act 2015 commenced on 1 July. The Act wholly replaces 10 other Acts and partly replaces four Acts, including the Local Land Services Act 2013 (Part 10 Pests) which will remain in place while Government considers its response to the Natural Resource Commission Report into pest animal management.

<http://www.dpi.nsw.gov.au/about-us/legislation/list/biosecurity-act-2015>

Australian Biosecurity Act 2015

At the Federal level, Australia is now operating under the Biosecurity Act 2015, which replaces the Quarantine Act 1908 and manages the biosecurity risks associated with goods, people and conveyances entering Australia.

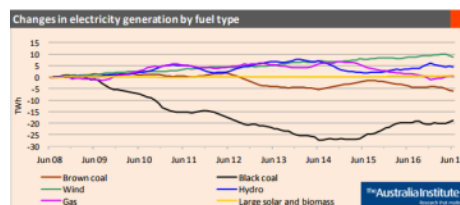
<http://www.agriculture.gov.au/biosecurity/legislation/new-biosecurity-legislation>

ENERGY

National energy emissions audit

This report, an update of key electricity trends in Australia, shows that Australian electricity prices are caused by the high wholesale price of gas. Gas prices have risen significantly, as predicted, with the development of export terminals and the linking of domestic gas to the Asian market.

<http://www.tai.org.au/sites/default/files/NEEA%20Electricity%20Update%20July%202017%20final.pdf>



White Rock wind and solar farms at Glen Innes

The first turbines at White Rock wind farm west of Glen Innes have been connected to TransGrid's network and are producing electricity. Once fully operational, the 175 MW wind farm will produce sufficient clean renewable energy to power approximately 75,000 homes. It will be linked to an adjacent 20 MW AC solar photovoltaic power plant which will be completed early next year.

<http://www.whiterockwindfarm.com/wp-content/uploads/2017/07/media-release-WRWF-switches-on-turbines.pdf>

<http://whiterocksolarfarm.com/wp-content/uploads/2017/07/Media-release-WRSF-celebrates-the-start-of-construction.pdf>

Sustainability of liquid biofuels

This report from the UK Royal Academy of Engineering reviews the most significant sustainability issues associated with the use of biofuels. Among the report's recommendations are setting a more stringent cap for supply of crop-based biofuels, as well as strengthened audit and certification schemes. It also recommends incentives to ensure that, where possible, marginal land not suited for food production is used to produce biofuels from energy crops.

<http://www.raeng.org.uk/publications/reports/biofuels>

FOOD

How many people can Australia feed?

Could Australia double the number of people we feed by 2061? Yes, but only if we increase food productivity, reduce food waste and change our eating patterns.

<https://theconversation.com/how-many-people-can-australia-feed-76460>

Growing better food systems: a question of planning

A recent study of NSW local community strategic plans found that only 10% of strategies mentioned anything about food systems as a community priority. NSW local authorities doing the most for better food systems were regional councils. These saw food security and the opportunities presented by local food production as urgent issues.

<https://theconversation.com/farming-the-suburbs-why-cant-we-grow-food-wherever-we-want-80330>

The importance of diversity in food systems

Increasing demand for nutritious, safe, and healthy food because of a growing population, and the pledge to maintain biodiversity and other resources, pose a major challenge to agriculture that is already threatened by a changing climate. Investments in plant sciences will be necessary to design diverse cropping systems balancing productivity, sustainability, and nutritional quality.

<http://www.sciencedirect.com/science/article/pii/S1360138517301346>



Climate change and food systems

This report from the Meridian Institute reviews key literature about how food and agriculture affect climate change and how climate change is affecting food systems. It documents specific interventions throughout the food system that support adaptation and mitigation in the short term while broader transformation is pursued.

<https://futureoffood.org/priority-initiatives/climate-change/>



Climate Change & Food Systems:
Assessing Impacts and Opportunities

Food and agribusiness roadmap

This CSIRO report looks at current trends and potential opportunities for food and agribusiness.

<https://www.csiro.au/en/Do-business/Futures/Reports/Food-and-Agribusiness-Roadmap>

Chokepoints in global food trade

UK thinktank Chatham House has assessed the importance of global trade chokepoints - maritime straits, major port hubs and inland transport networks - to global food security. It found that over half of all internationally traded grain must pass through at least one of 14 major chokepoints and that over 10 per cent depends on a maritime chokepoint to which there is no viable alternative route.

<https://www.chathamhouse.org/about/structure/eer-department/vulnerabilities-and-choke-points-global-food-trade-project>

What is a free range egg?

There are a range of resources that can help you find egg producers who follow best-practice standards, avoid farming practices that concern you, and understand what government guidelines really mean.

<https://theconversation.com/how-to-know-what-youre-getting-when-you-buy-free-range-eggs-81675>

People's food policy for England

This policy is a blueprint for an integrated food policy that puts people at the heart of decision-making.

<https://www.peoplesfoodpolicy.org/>

LAND USE

Liverpool Plains protected from coal mining

The NSW Government has scaled back the section of the Shenhua Watermark Coal exploration licence that encroached on the flat fertile agricultural land of the Liverpool Plains. The agreement will see 51.4 per cent of the company's exploration licence handed back, with the Government refunding around \$262 million to Shenhua.

http://www.resourcesandenergy.nsw.gov.au/_data/assets/pdf_file/0019/724114/Liverpool-Plains-protected-from-mining-exploration.pdf

Land use guidelines for disaster resilient communities

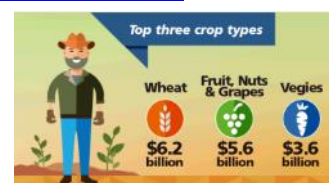
The Planning Institute of Australia has published national land use planning guidelines for disaster resilient communities to integrate natural hazard risk reduction and resilience into land use planning practice."

<https://www.planning.org.au/policy/national-land-use-planning-guidelines-for-disaster-resilient-communities-2>

Agricultural census 2015-16

Findings of the ABS 2015-16 agricultural census are now available.

<http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/7121.0Main%20Features12015-16>



SUSTAINABILITY

Orange grazing trial

The latest issue of the CSIRO journal Animal Production Science focuses on grazing research undertaken near Orange as part of the national Evergraze program. The Orange proof site investigated interactions among landscape variability, grazing method and stocking rate and concluded that increasing the intensity of grazing management resulted in higher lamb production per hectare, but had lower whole-farm profitability due to higher infrastructure costs.

<http://www.publish.csiro.au/an>

Unilever rates Australian dairy industry 100% sustainable

Unilever has rated the Australian dairy industry as a 100% sustainable supplier of milk, and reflects Australian farmers' focus on sustainable farming processes. Unilever's Sustainable Agriculture Code comprises 11 social, economic and environmental indicators: soil health, soil loss, nutrients, pest management, biodiversity, farm economics, energy, water, social and human capital, local economy and animal welfare.

<https://www.unilever.com/news/news-and-features/Feature-article/2013/13-11-29-Australia-meets-Unilever-standards-on-sustainable-dairy-sourcing.html>

EU roadmap for sustainable livestock

The EU roadmap for sustainable livestock emphasises innovation, technology, and science-based solutions.

<http://www.eu40.eu/roadmap-eu-livestock/>



Sustainable food chains

Ceres, a US sustainability nonprofit organisation working with influential investors and companies, has released a new website to help investors. They argue that agricultural commodity trade is highly affected by issues such as climate change, deforestation, water use and pollution, and that companies need to take these into account in order to improve supply chain security and ensure consumer acceptability.

<https://engagethechain.org/>

A matter of scale

This UK report, based on a survey of 69 holdings of 20ha and less, highlights how a diverse and vibrant sector of small farms provides employment, attracts new entrants and incubates entrepreneurs.

http://www.organicresearchcentre.com/?i=articles.php&art_id=897&go=Information%20and%20publications

How cats and cows protect farm children from asthma

Immunologists have shown that a sialic acid found in farm animals is effective against lung tissue inflammation, which opens up a variety of perspectives for prevention of allergies.

<https://www.sciencedaily.com/releases/2017/07/170706072101.htm>

EVENTS

August 23-24	Murray Darling Basin native fish forum, Canberra https://www.eventbrite.com.au/e/fish-flows-habitat-and-heroes-tickets-346838
September 5-7	Queensland coastal conference, Airlie Beach http://event.icebergevents.com.au/qldcoastalconference2017
September 18-20	International river symposium/environmental flows conference, Brisbane http://riversymposium.com/
September 24-28	Australian agronomy conference, Ballarat http://www.agronomyconference.com/
September 25-28	Australian Rangeland Society conference http://www.austrangesoc.com.au/
October 16-19	NSW weeds conference, Armidale http://conferencecompany.com.au/weedsconference/
October 18-20	National private land conservation conference, Hobart http://plc-conference.org.au/
October 25-27	NSW Landcare and Local Land Services conference, Albury http://nswlandcareconference.com.au/
June 2018	Adaptation futures 2018, Cape Town, South Africa http://adaptationfutures2018.capetown/

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.

PLEASE NOTE

This is the last edition of NRM on Farms to be produced for NSW Department of Primary Industries. Future issues will be produced by Rebecca Lines-Kelly in a private capacity as confirmed with DPI. To subscribe to future editions, email Rebecca Lines-Kelly at nrmonfarms@primus.com.au

Recent issues of NRM on Farms are available at
<http://www.dpi.nsw.gov.au/content/agriculture/resources/climate-and-weather>