

NRM on farms



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

August 2015

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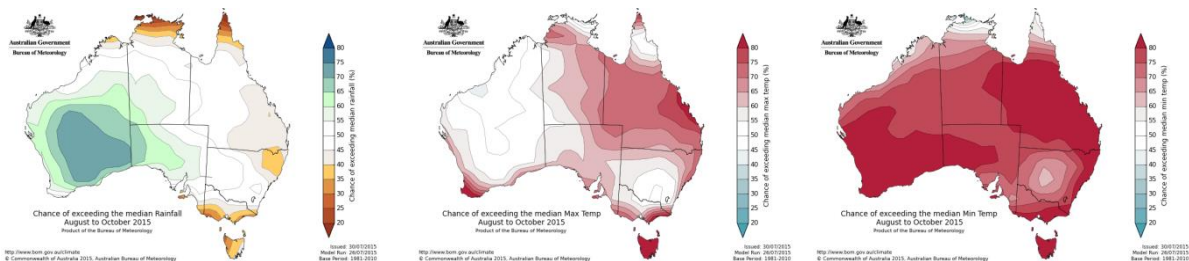
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CLIMATE

Seasonal outlook



An average to dry outlook is likely for NSW over the next three months, with warmer nights and average to warmer days, reflecting the much warmer-than-average sea surface temperatures in the Indian Ocean, and El Niño in the Pacific. Historical outlook accuracy for August to October in eastern NSW is low.

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

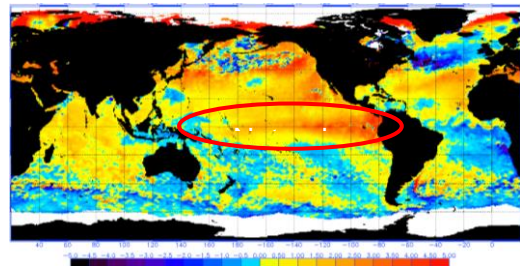
Video: <http://www.bom.gov.au/climate/outlooks/#/overview/video>

Ocean temperatures

Sea surface temperatures were more than 2°C warmer than average in the eastern equatorial Pacific at the beginning of August. The northern Pacific was 1-2°C warmer.

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

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



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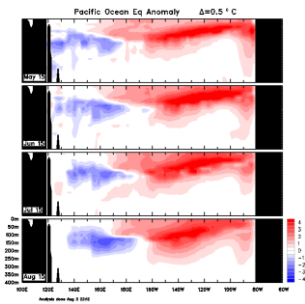


Department of
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Subsurface warmth increases

Subsurface anomalies continue to warm in the eastern half of the equatorial Pacific, with a hot spot in the central Pacific.

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



El Niño to persist into 2016

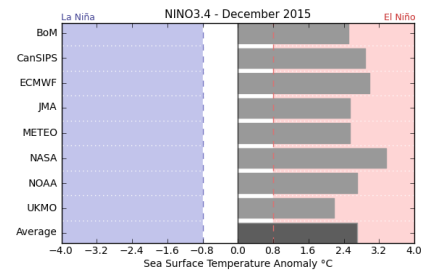
El Niño continues to strengthen but current anomalies remain well short of the 1982 and 1997 peaks. Peak values are normally recorded late in the year.

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

Model outlook

The latest NINO3.4 forecasts indicate that sea surface temperatures across the central tropical Pacific Ocean are likely to persist at above El Niño thresholds until the end of 2015. The all-model average NINO3.4 outlook for October is just above +2.6°C, increasing to +2.7°C by December. Since the late 1970s, NINO3.4 values this large have only been observed during the 1982-83 and 1997-98 El Niño events.

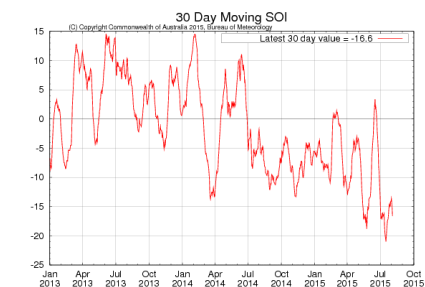
<http://www.bom.gov.au/climate/ahead/model-summary.shtml#tabs=Pacific-Ocean>



SOI remains negative

The SOI has remains firmly negative. The 30-day SOI value to 2 August was -14.4. Sustained negative values below -7 may indicate El Niño.

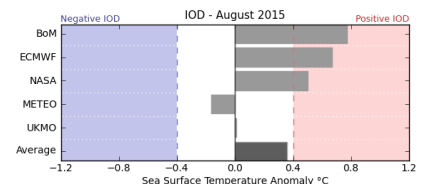
<http://www.bom.gov.au/climate/enso/#tabs=SOI>



Positive IOD by spring?

The Indian Ocean Dipole is currently neutral. Three out of five model outlooks suggest some tendency towards a positive IOD by spring 2015, while the other two suggest a neutral outlook. 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>



NSW DPI seasonal conditions report

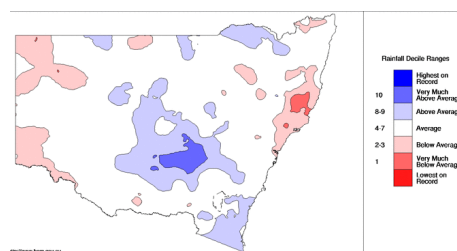
Subscribe to NSW DPI's seasonal conditions report, and the climate summary which provides a snapshot of the monthly report in an easy to read four-page format with additional graphs and charts.

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

New South Wales in July

NSW's mean July temperature was the coolest since 1997 due to two low pressure systems which brought snow to the tablelands and central NSW. State rainfall was 11% below average but parts of central NSW recorded their wettest July since 1993.

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



CLIMATE RESOURCES

Australia's agricultural future: Climate is a significant risk

A new report into Australia's agricultural future identifies climate change and climate variability as significant long-term risks that need to be managed. While there is still some uncertainty about the regional impacts of climate change, it is already clear that southern Australia's rainfall is decreasing, particularly in the autumn when winter crops are germinating, which threatens Australia's international competitiveness in dryland farming. There is an ongoing need to manage risks associated with fluctuations in production arising from periods of prolonged drought. R&D will be needed to provide transformational changes in productivity in the face of climate change.

<http://www.acola.org.au/index.php/projects/securing-australia-s-future/7-australia-s-agricultural-future>

SA winegrowers adapt to changing climate

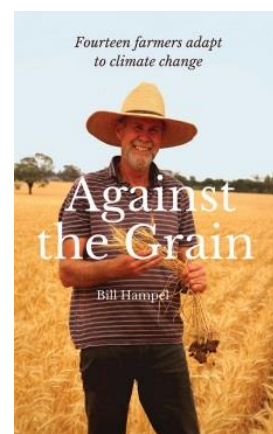
McLaren Vale winegrowers are adapting to climate change by working together to secure their natural resources. They have organised a recycled water scheme to secure irrigation resources, eliminating the risk of groundwater depletion for the near future. They are using methods that conserve water and maximise the quality of the soils, and spreading their risk by diversifying into other regions and industries, especially tourism. They are experimenting with varieties from the warmer southern parts of Europe that might better fit their future climate. They have worked with governments to strengthen planning policy and protect rural land from the expansion of Adelaide's southern suburbs. The growers have strong networks and a globally recognised Geographical Indication mark which is being strengthened with the mapping of the region's unique soils.

<http://theconversation.com/message-in-a-bottle-the-wine-industry-gives-farmers-a-taste-of-what-to-expect-from-climate-change-45361>

New book: Farmers adapt to climate change

In this new book, *Against the Grain*, fourteen farmers tell how they are adapting to climate change by observing and recording changes in the weather, adapting their practices, reducing greenhouse gases, planting trees and remaining profitable. The book includes a summary of climate change impacts and an account of the numerous economic, political and media barriers to change.

<http://www.publish.csiro.au/nid/18/pid/7510.htm>



East coast low update

East coast lows are intense low-pressure systems that occur off the east coast of Australia. While their damage can be costly, they are also important for water security, filling dams along the coast and tablelands. Results to date of a major research collaboration into their causes, impacts and changes into the future are now available online.

<http://www.climatechange.environment.nsw.gov.au/About-climate-change-in-NSW/Evidence-of-climate-change/East-Coast-Low-Projects>

Nature: Climate proofing agriculture

A recent issue of Nature features an editorial and review about agricultural adaptation to climate change.

<http://www.nature.com/news/quest-for-climate-proof-farms-1.18015>

<http://www.nature.com/news/prepare-farms-for-the-future-1.18018>

Record breaking rain due to rising temperatures

In the last three decades the number of record-breaking rainfall events has significantly increased, with 12% more record-breaking rainfall events over 1981–2010 compared to those expected. This increase is explained by a statistical model which accounts for the warming of air and associated increasing water holding capacity. While the number of rainfall record-breaking events can be related to natural multi-decadal variability over the period from 1901 to 1980, observed record-breaking rainfall events significantly increased afterwards consistent with rising temperatures.

<https://www.pik-potsdam.de/news/press-releases/record-breaking-heavy-rainfall-events-increased-under-global-warming>

Glaciers are melting faster

A new analysis of global glacier changes has found that monitored glaciers are losing 500-1000cm of ice every year, two to three times more than the corresponding average of the 20th century. This melt rate is without precedence at global scale in the past 120 years. The study also shows that the long-term retreat of glacier tongues is a global phenomenon.

http://www.mediadesk.uzh.ch/articles/2015/gletscher-verlieren-mehr-eis-als-je-zuvor_en.html

Fire season lengthens

Over the past 35-years, the length of forest fire seasons worldwide has increased by 18.7 percent due to more rain-free days and hotter temperatures. Researchers combined fire danger indexes from the US, Canada and Australia and found that on all the forested continents, except Australia, the fire seasons are getting longer, and the area affected by the longer fire season has doubled.

<http://www.sciencedaily.com/releases/2015/07/150720133631.htm>

The knowns and unknowns of climate change

James Cook University academic Bill Lawrence summarises what we think we know, don't know, and things that could surprise us about climate change and the environment.

<https://theconversation.com/the-scariest-part-of-climate-change-isnt-what-we-know-but-what-we-dont-45419>

ATO to assist drought-affected communities

The Australian Taxation Office will work with the Department of Agriculture to identify drought-affected taxpayers and provide personalised assistance and customised support plans for business owners and communities in these areas.

<http://www.agricultureminister.gov.au/Pages/Media-Releases/tax-support-for-drought-affected-communities.aspx>

Evaluations of adaptive capacity need to be improved

A study of adaptive capacity of agricultural producers of the WA rangelands has found that while there is strong institutional support this is rarely translated into action on the ground. As the impacts of climate change become more apparent to producers, institutional responses to combat associated vulnerabilities must be evaluated, but further research is needed to improve the accuracy and applicability of such evaluation.

<http://www.publish.csiro.au/nid/202/paper/RJ15015.htm>

Institutions and the speed of change

A study of barriers to climate change adaptation in Australia suggests that the nature of institutions that govern natural resources and public goods is a deep driver of barriers and limits to adaptation. Such institutions are resistant to changing the way things have always been done, doing things that have never been done, or improving deficient practices. When this resistance causes the changes necessary for adaptation to be slower than changes in climate, then it becomes a limit to adaptation.

<http://www.ecologyandsociety.org/vol20/iss3/art5/>

Impact of volcanic eruptions on climate

New research has found that large eruptions in the tropics and high latitudes were primary drivers of temperature variability in the Northern Hemisphere in the past 2,500 years, and catalysts in the major sixth-century pandemics, famines, and socioeconomic disruptions in Eurasia and Mesoamerica. Cooling was proportional to the magnitude of the eruption and persisted for up to ten years after some of the largest eruptions.

<http://www.nature.com/nature/journal/v523/n7562/abs/nature14565.html>

Communicating climate change uncertainty

This UK handbook provides practical and easy-to apply principles for smarter communication about climate change uncertainties.

<http://www.climateoutreach.org.uk/portfolio-item/uncertainty-handbook/>

EMISSIONS

Second ERF auction in November

The Clean Energy Regulator will hold its second Emissions Reduction Fund auction for carbon abatement contracts on 4-5 November. Auction guidelines will be published on 21 August 2015. Applications for new auction projects are required to be submitted in full by 18 September 2015.

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

Emissions methods for agriculture

The Clean Energy Regulator now has a webpage for guides and tools for reducing emissions in agricultural activities, including guides for piggeries, beef cattle feed and fertilisers in cotton, and several calculators.

<http://www.cleanenergyregulator.gov.au/ERF/Forms-and-resources/methods/resources-for-agricultural-methods>

Carbon sequestration on sheep grazing land

A study of carbon sequestration in Australian wool-producing regions found that woody vegetation and pasture management offset greenhouse gas emissions per kilogram of greasy wool by 2–10%. Sequestration in improved pastures in the NSW northern tablelands is uncertain but potentially significant. Improved data and consistent methodologies are needed, and additional impact categories, such as biodiversity, need to be included to recognise public and private benefits provided by good management of vegetation resources on farms.

<http://www.publish.csiro.au/nid/202/paper/RJ14109.htm>

Methane inhibitor reduces dairy emissions

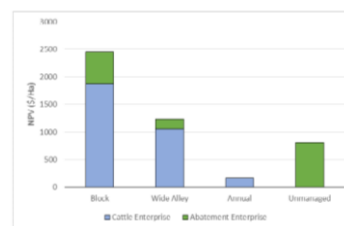
US research has found that the novel methane inhibitor 3-nitrooxypropanol or 3NOP fed to dairy cattle over 12 weeks reduced methane emissions by 30 percent and the cattle gained 80 percent more body weight than cows in a control group.

<http://news.psu.edu/story/364787/2015/08/04/research/feed-supplement-greatly-reduces-dairy-cow-methane-emissions>

Tagaste and sequestration

This Evercrop report looks at the profitability of tagasaste with sequestration income under the Emissions Reduction Fund. Modellers used tagasaste grown on deep sands and grazed by cattle. Planting dense tagasaste rows in blocks at 7 metre levels was the best value and abatement proposition.

<http://wp.csiro.au/evercrop/files/2015/06/Evercrop-Carbon-Plus-Economic-Analysis.pdf>



Rangelands carbon conference

Western LLS is organising this conference in Cobar in October to address the emerging carbon economy in Australian rangelands. The conference will cover the ERF, science of carbon sequestration and emissions reduction, rangelands climate change and adaptation, ongoing management of sequestration projects and opportunities for the integration of carbon projects with improved land management practices.

<http://western.lls.nsw.gov.au/resource-hub/events/2015/rangelands-carbon-conference>

Nitrous oxide emissions are underestimated in US

US research has found that estimates of nitrous oxide emissions in central US have been underestimated by as much as 40 percent. The study measured nitrous oxide emitted from streams in an agriculturally dense area in southern Minnesota and found that the smallest streams, or those with the closest connections to the land, were the strongest sources.

<http://discover.umn.edu/news/environment/greenhouse-gas-source-has-been-underestimated-us-corn-belt-university-minnesota-led>

We need to remove CO2 to keep warming below 2°C

Two recent papers published in Nature show that to limit warming below 2°C we will have to remove some carbon from the atmosphere, no matter how strongly we reduce emissions. If we can keep warming below 2°C, it will not restore the oceans to the state they were in before we began altering the atmosphere. While reducing carbon emissions is the safest and preferred path for avoiding dangerous climate change and ocean acidification, it is likely that some carbon dioxide removal will be required to achieve this.

<https://theconversation.com/reducing-emissions-alone-wont-stop-climate-change-new-research-45493>

New book: Nitrogen and climate change

UK academic David Reay describes the challenge of feeding a growing human population without exacerbating climate change: how more efficient use of nitrogen in agriculture and less food wastage can help.

<http://www.palgrave.com/page/detail/nitrogen-and-climate-change-dave-reay/?K=9781137286949>

Mitigation is in national self-interest

This UK paper argues that there is a strong case that most of the emission reductions needed to avoid dangerous climate change can be achieved in ways that result in national economic benefits that outweigh the costs, even before climate-related benefits are taken into account.

[http://www.lse.ac.uk/GranthamInstitute/wp-](http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/07/F_Green_Nationally_Self_Interested_Climate_Change_Mitigation.pdf)

[content/uploads/2015/07/F_Green_Nationally_Self_Interested_Climate_Change_Mitigation.pdf](http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/07/F_Green_Nationally_Self_Interested_Climate_Change_Mitigation.pdf)

WATER

Senate inquiry into MDB Plan

A Senate inquiry will report in February on the positive and negative impacts of the Plan and associated Commonwealth programs on regional communities. The inquiry will look at progress and costs; effects on agricultural industries, wellbeing, environmental water flows and river channel capacity; environmental changes to date, and constraints and options to mitigate the identified risks. Over a thousand people attended the inquiry's Barham hearing last month. Five CEOs of commodity-based companies in the Basin have formed a CEOs Basin Group to help address some of the issues facing communities affected by the Plan.

<http://www.abc.net.au/news/2015-07-13/rice-mdb/6614432>

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Murray_Darling_Basin_Plan/murraydarling/Terms_of_Reference

Water Amendment Bill 2015

A Senate inquiry into proposed amendments to the Water Act 2007 and Basin Plan 2012 is due to report in early September. The Bill proposes to impose a duty on the Commonwealth not to exceed the 1500 GL limit on surface water purchases in the Basin at the time of entering into a water purchase contract; and to provide flexibility in the recovery of 450GL for the environment through efficiency measures funded under the Water for the Environment Special Account.

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Water_Amendment_Bill_2015

7



Department of
Primary Industries

Funding for bore capping

NSW has committed to Phase 4 of the national Great Artesian Basin Sustainability Initiative which is offering \$16 million for capping of uncontrolled bores and piping of open bore drains. The NSW Government will put forward a list of proposed projects for the 238 bores across the State still to be controlled.

<http://www.environment.gov.au/minister/baldwin/2015/mr20150717.html>

<http://www.abc.net.au/news/2015-07-23/capping-and-piping-our-greatest-water-resource-for-the-future/6642300>

Where does all the water go?

A new study into the fate of water has found that of all precipitation over land (excluding river runoff to the oceans), 64 percent is transpired by plants, 6 percent evaporates from soils, and 3 percent evaporates from lakes, streams and rivers. The remaining 27 percent falls on leaves and evaporates, a process called interception. The most important pathway is the water that passes through plants because it is directly related to the productivity of natural and agricultural plants. Another finding was that only 38 percent of water entering groundwater, lakes or rivers interacts with soil, the rest moving rapidly into groundwater and lakes and rivers.

http://www.nsf.gov/news/news_summ.jsp?cntn_id=135546

Water bugs indicate water quality

Waterbugs are the most widely used bioindicator of environmental health and pollution of rivers, lakes and wetlands. For instance, mayflies indicate healthy water systems while Chironomid midges are highly tolerant of pollution and other disturbances so indicate more polluted environments.

<https://theconversation.com/how-healthy-is-your-river-ask-a-waterbug-43842>

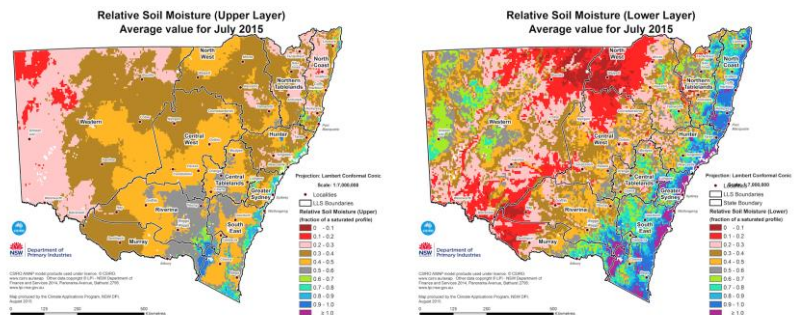
SOILS

NSW July soil moisture

Topsoil moisture levels improved across much of inland NSW during July and remained stable on the coast. Subsoil moisture levels were generally stable, but remain low in areas of the north west and western Riverina. Farm water supplies are variable, with run off reasonable in some areas but limited in others.

<http://www.dpi.nsw.gov.au/agriculture/emerge>

[ncy/seasonal-conditions/regional-seasonal-conditions-reports/seasonal-conditions/july-2015](http://www.dpi.nsw.gov.au/agriculture/emerge/ncy/seasonal-conditions/regional-seasonal-conditions-reports/seasonal-conditions/july-2015)



Soil and water research

Where do Australia's soil and water research priorities lie? Three of Australia's top scientists offer their ideas.

<https://theconversation.com/science-can-drive-the-sustainability-of-our-precious-soils-water-and-oceans-43641>

National soil priorities

Australia's five key soil priorities have been released on the National Primary Industry RDE Framework website. The priorities are: solutions to soil-based constraints to agricultural productivity; improved nutrient and water-use efficiency to increase productivity and minimise negative impacts (including acidification, eutrophication, leaching and agricultural greenhouse gas emissions); better information systems for soil-related knowledge exchange; verification and communication of innovation in soil management; and effective soil and land use policy.

http://www.npirdef.org/files/resourceLibrary/resource/88_KeyprioritiesSOILSNationalRDEImplementation.pdf

New method for model-based carbon sequestration

The Emissions Reduction Fund now includes a method for model-based carbon sequestration that estimates changes in soil carbon on agricultural land using default soil carbon values derived from FullCAM modelling and provided in the CFI Mapping Tool. The method requires at least one of the following actions: sustainable intensification, requiring management actions such as nutrient management, new irrigation, managing soil acidity or pasture renovation; stubble retention, where crop residue that was previously removed through burning or baling is retained in field; and conversion to pasture, where land under continuous cropping is permanently converted to pasture. This method is an alternative to the sequestering carbon in soils in grazing systems method where changes in soil carbon stocks are estimated through direct measurement. Together the two methods offer participants the option to select the approach that best suits the circumstances of their project.

<http://www.cleanenergyregulator.gov.au/ERF/Pages/News%20and%20updates/News-Item.aspx?ListId=19b4efbb-6f5d-4637-94c4-121c1f96fcfe&ItemId=153>

Soil carbon on dairy farms

NZ research has found that soil organic carbon stocks on dairy farms were positively correlated with rates of fertiliser application and rate of water application, and negatively correlated with changes in milk production (changes in the grazing regime and plant root:shoot ratios). Anticipated environmental changes, such as increases in temperature and CO₂ concentration, and both increases and decreases in precipitation had either neutral or detrimental effects on soil organic carbon stocks.

http://researchcommons.waikato.ac.nz/bitstream/handle/10289/9474/Paper_Kirschbaum_2015.pdf

Soil conditioners help soils take up more methane

A Netherlands laboratory study has found that addition of conditioners to agricultural soil increased methane uptake, possibly due to increasing the nutrients available in the soil by introducing new methanotrophs, both of which can stimulate methane oxidation. The soils naturally oxidise methane over a wide range of concentrations but, after treatment, methane consumption was up to three times higher than in the untreated soil. Compost had the greatest effect, offsetting approximately 16% of net emitted carbon dioxide. The authors suggest simple changes such as the repeated application of compost could reduce the impact of greenhouse gas emissions.

http://ec.europa.eu/environment/integration/research/newsalert/pdf/methane_climate_change_mitigation_by_compost_soil_422na5_en.pdf

Compost trials: Review and guide

Sustainability Victoria recently completed a review of research into the use of recycled organic composts, soil conditioners and mulches in market gardening, broadacre cropping, viticulture, orchards and pasture. They have also produced a guide to conducting compost demonstration trials.

<http://www.sustainability.vic.gov.au/services-and-advice/business/recycled-organics-market-development/copy-of-product-effectiveness>

Bacteria not archaea

WA research has found that in semi-arid agricultural soils, ammonia-oxidising bacteria are responsible for the majority of soil nitrification activity, and not ammonia-oxidising archaea as has been found in other parts of the world.

<http://www.nature.com/srep/2015/150608/srep11146/pdf/srep11146.pdf>

Strip-till benefits soil more than no-till

US comparison of strip-tilled and no-tilled soils found that after five years soil organic matter content was 8.6% greater in the strip-till plots compared to the no-till plots. Bulk density was reduced by 4% and penetration resistance, the force a root must exert to move in the soil, decreased by 18%. There was no significant change in water aggregate stability.

<https://www.agronomy.org/science--news/benefits-strip-till-surface-after-five-year-study>

Soil Change Matters papers now online

The 80+ abstracts and papers from the 2014 Soil Change Matters symposium at Bendigo, Victoria, are now available online.

http://vro.depi.vic.gov.au/dpi/vro/vrosite.nsf/pages/soil-matters_soil-change-matters

Soil wealth website

This new website provides information on vegetable soil management and crop protection practices. The site is funded by Horticulture Innovation Australia Limited using the vegetable industry levy and funds from the Australian Government.

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

BIODIVERSITY

Survey finds 67% of landholders have wild dog problem

A national ABARES survey found 67 per cent of landholders surveyed had a wild dog problem on their property, and 26 per cent, including landholders along the NSW Great Dividing Range, rated the problem as severe. Sheep losses per property as a proportion of current stock averaged eight per cent, and cattle losses averaged two per cent. Two thirds of all sheep killed and 91 per cent of all cattle killed were aged less than 12 months.

<http://www.wool.com/on-farm-research-and-development/sheep-health-welfare-and-productivity/pest-animals/wild-dogs-foxes-and-pigs/>

New bee care videos

NSW DPI has produced videos on pests and diseases of honey bees to assist with honey bee biosecurity and pollination of agricultural and horticultural crops. The videos are now featured on the BeeAware website.

<http://beeaware.org.au/>

Landcare campaign to help bees

Landcare has launched a donation campaign to establish specially equipped tracker hives around Australian coastal ports to prevent overseas threats such as varroa mite escaping and spreading into Australia. The surveillance program needs 378 hives in 42 ports around Australia to make this an effective defence. The cost for the construction and delivery of each hive is \$800.

<http://landcareaustralia.gofundraise.com.au/>

\$1 million more for flying fox netting

NSW Government has announced an additional \$1 million to continue its flying fox netting program. The additional funding builds on the \$5 million for throw-over and fully secured netting. This program is available across the whole of NSW and meets half the cost of installing netting for eligible properties, capped at \$20,000 per hectare.

http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0007/568492/media_release_150723_big_boost_flying_fox_netting_program.pdf

Threatened species strategy targets feral cats

The Australian Government has established a new threatened species strategy to tackle feral cats, create safe havens for species most at risk, improve habitat, and intervene in emergencies to avert extinctions. The Action Plan 2015-16 identifies 10 threatened mammals and 10 threatened birds for action that will grow their populations by 2020, and two mammals and two birds requiring emergency intervention.

<http://www.environment.gov.au/biodiversity/threatened/publications/strategy-home>

State of Australia's birds

Data collected by volunteers and researchers around Australia shows significant declines in 12 of 20 arid zone carnivores, Mallee woodland birds, kookaburras and aerial insect catchers on the East Coast, and some parrot species, including the purple-crowned, musk and little lorikeets, crimson rosella, and yellow-tailed black-cockatoo.

<http://birdlife.org.au/state-of-birds>

Species diversity is related to biomass

A global study has found a consistent biological rule governing the link between plant biomass and species richness in grassland ecosystems: plant species diversity is generally greatest at intermediate levels of plant biomass. This has implications for land management that wants to enhance both economic and environmental outcomes.

<http://uofa.ualberta.ca/science/science-news/2015/july/plant-species-biodiversity>

Serrated tussock survey shows limited capacity

A survey of NSW northern tablelands landholders on measures to prevent serrated tussock outbreaks found that respondents, particularly lifestyle farmers, had limited capacity to detect the weed or control its spread. Regulators and information providers need to consider how to engage communities in biosecurity, particularly control measures

<http://www.publish.csiro.au/nid/202/paper/RJ15010.htm>

Field guide to dung beetles

This field guide covers all species found in Australia, including two newly introduced species. Information includes basic biology, photographs and distribution maps.

<http://www.publish.csiro.au/nid/18/pid/7207.htm>

Electronic field guide to Australian frogs

This field guide app profiles 238 Australian species, with over 1200 high resolution images and more than 700 frog call sound clips.

<https://itunes.apple.com/au/app/frogs-australia-complete-electronic/id680061595?mt=8>

How to grow an urban forest

This ten-step guide aims to help councils save money, time and share practical knowledge.

<http://202020vision.com.au/media/41948/urban-forest-strategy-workbook.pdf>

ENERGY

NSW Farmers call for renewable energy

The NSW Farmers Association has a new policy that says farmers are on the 'front lines of seasonal variability' and calls on governments to 'support the transition from fossil fuels like coal and gas towards more renewable energy sources in rural, regional and remote areas where their operation can be shown to be of a net benefit to farming communities'.

http://www.nswfarmers.org.au/_data/assets/pdf_file/0014/44105/068.mr.15.pdf

Senate to report on landholders' right to refuse Bill

A Senate inquiry into the Landholders' Rights to Refuse (Gas and Coal) Bill 2015 will report on 31 August 2015. The private senator's bill proposes to make gas or coal mining activities undertaken without prior written authorisation from landholders unlawful and would ban constitutional corporations from engaging in hydraulic fracturing operations (fracking) for coal seam gas, shale gas and tight gas. The inquiry received 93 submissions.

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Gas_and_Coal

Wind turbines report recommends expert committee

This report recommends the creation of an independent scientific to provide research and advice to the Minister for the Environment on the impact on human health of audible noise and infrasound from wind turbines.

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Wind_Turbines/Wind_Turbines/Final_Report

FOOD

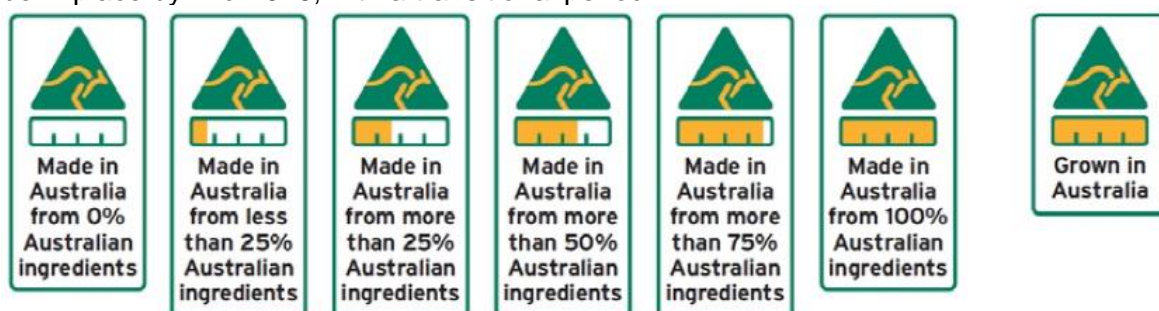
Australia's food production priorities

What are Australia's food production priorities? Several researchers offer their ideas in this article. Australia needs to close the gap between the theoretical potential yield and current farm yield which currently varies from 20% to 80%, and increase total photosynthesis, biomass and water efficiency by increasing crop duration and light capture and improving the underlying biochemistry of photosynthesis.

<https://theconversation.com/australia-has-a-big-role-to-play-in-feeding-the-world-43648>

New country of origin labelling.

The Australian Government has proposed food labelling to identify whether the food was grown or made in Australia and the percentage of Australian grown ingredients. Any 'packed in' statements will include a clear country of origin statement. The new system is expected to be in place by mid-2016, with a transitional period.



<http://www.industry.gov.au/industry/IndustrySectors/FoodManufacturingIndustry/Pages/Country-of-Origin-Labeling.aspx>

Future of local food

Victorian local government has organised a Future of Local Food Conference on September 10-11 to showcase food system innovation, strategy and inspiration.

<http://futureoflocalfood.org.au/>

Novel food production

This UK report summarises emerging approaches in the food sector including controlled-environment farming, alternative animal feeds, edible insects, and lab-cultured meat.

<http://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-0499>

LAND USE

Overview of right to farm laws

This e-brief from the NSW Parliamentary Research Service discusses the history and purpose of right to farm laws and their application in the US and Canada. The position in Australia is also discussed, as is the question of the place of such laws in the broader context of the system of planning legislation.

[http://www.parliament.nsw.gov.au/Prod/parliament/publications.nsf/0/0BB04066CDA45CE2CA257E740006CE2D/\\$File/The+right+to+farm.pdf](http://www.parliament.nsw.gov.au/Prod/parliament/publications.nsf/0/0BB04066CDA45CE2CA257E740006CE2D/$File/The+right+to+farm.pdf)

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Department of
Primary Industries

ABS land use and farming statistics

In 2013-14 53% of Australia's total land area was managed by agricultural businesses. Almost 20% of agricultural businesses applied a soil enhancer to their land, most commonly lime and dolomite. Of the nitrogen based fertiliser types, ammonium phosphates were applied to the largest area of agricultural land (12.0 million hectares), closely followed by urea (11.9 million hectares). Broadcasting on the surface was the most common application method for nitrogen fertilisers. Despite an increase of 3% in the number of agricultural businesses undertaking intercropping since 2011-12, the area on which it was undertaken has decreased.

<http://www.abs.gov.au/ausstats/abs@.nsf/mf/4627.0>

SUSTAINABILITY

Using markets to conserve natural capital

The Wentworth Group of Concerned Scientists have identified five long-term institutional and economic reforms for a healthy environment and a productive economy: Fix land and water use planning, use markets, conserve natural capital, regionalise management and create environmental accounts.

<http://wentworthgroup.org/wp-content/uploads/2015/06/Wentworth-Group-Blueprint-Technical-Paper-1-Using-Markets-to-Conserve-Natural-Capital-June-2015-FINAL.pdf>

RIRDC reports on national rural issues

RIRDC is releasing five new research reports from its National Rural Issues program. They cover geographical indications of food origins; insights into what drives the business performance of some of Australia's most effective and innovative farmers, the untapped use of collective bargaining in the agricultural sector, 15 to 20 year agricultural sector megatrends, and factors that will influence Australian farm competitiveness in the global marketplace.

<http://www.rirdc.gov.au/news/2015/07/27/new-research-to-inform-debate-on-the-future-for-australia-s-rural-industries>

Integrated orchard management guide

NSW DPI has released an integrated orchard management guide for macadamia crops, focusing on canopy, orchard floor and drainage management. The guide is a result of an investigative study tour that visited highly productive orchards in Australia.

http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/567157/macadamia-integrated-management-user-guide.pdf

Farmer participation in environmental schemes

A UK review of agri-environment schemes that pay farmers to modify their farming practice highlights the key factors that influence farmers, and how such schemes could be improved to encourage more participation.

<http://www.ncl.ac.uk/cre/publish/policynotes/Farmers%20and%20AES%20%20final.pdf>

EVENTS

September 1	Celebrate Soil Symposium, Albury http://www.necma.vic.gov.au/Events/ArtMid/461/ArticleID/157/CELEBRATE-SOIL-SYMPOSIUM-
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
October 28-29	Rangelands carbon conference, Cobar http://western.lis.nsw.gov.au/resource-hub/events/2015/rangelands-carbon-conference
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/
November 18-19	Climate Change Research Strategy in Primary Industries conference, Sydney http://www.ccrspi2015conference.com/program.php
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.