SOIL matters

IN THIS ISSUE:

Welcome to Soil Matters, a bimonthly newsletter providing updates and information on soil, weather and industry developments to support on-farm decision making within the SA Murray-Darling Basin. This newsletter will draw together a number of resources including;

- Bureau of Meteorology seasonal outlook
- Murray-Darling Basin weather station network
- SA Murray-Darling Basin soil moisture probe network
- Upcoming grant, programs and projects relevant to your region

This is a newly developed newsletter, we would appreciate any feedback on content and are happy to assist with any inquiries with regards to the featured tools and projects. Please contact Eliza Rieger, Regional Landcare Facilitator on eliza.rieger@sa.gov.au or 0408416684 for more information.

Please contact Eliza if you would prefer to receive a hard copy of this newsletter.

Photo of the month

Spring crop walks were held across the Murray Mallee with support from Natural Resources SA Murray-Darling Basin. High rainfall, agile farmers and diverse rotations have led to high yields across the district.

Government of South Australia

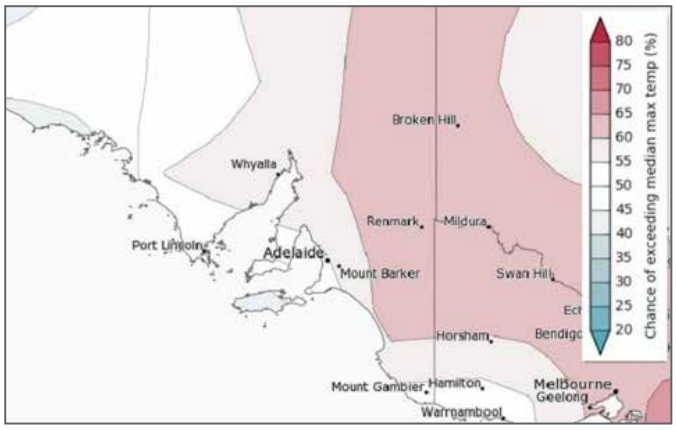
Natural Resources SA Murray-Darling Basin

Australian Government | National Landcare Programme

Regional Landcare Facilitator

BOM Weather Forecast

The following information has been sourced from the Bureau of Meteorology 'Climate Outlook-monthly and seasonal" issued on 27 October 2016.



Chance of exceeding median rainfall (%)

- There is a there is a 50% chance of median rainfall for the Eastern Mount Lofty Ranges over the November 2016-January 2017 period; recorded median rainfall is 78mm. Past accuracy for this district is very low.
- There is a there is a 50% chance of median rainfall for the SA Murray Mallee over the November 2016 - January 2017 period; recorded median rainfall is 63mm. Past accuracy for this district is low.
- There is a there is a 50% chance of median rainfall for the Overland Corner over the November 2016-January 2017 period; recorded median rainfall is 53mm. Past accuracy for this district is very low.
- There is a 60% chance of above average daytime temperatures across the Northern and Eastern Murray Mallee

Chance of exceeding median temperature (°C)

- There is a 60% chance of above average daytime temperatures across the SA Riverland and Rangelands
- There is a 50% chance of above median maximum temperature for the Eastern Mount Lofty Ranges
- Climate influences include a weakening negative Indian Ocean Dipole, an ENSO-neutral tropical Pacific, and warm seas around northern Australia (see the Climate Influences section).
- Maximum temperature accuracy is moderate to high over most of Australia, except the south of the Gulf of Carpentaria, where accuracy is low.

SAMDB weather station network

October rainfall has been steady across the region providing plant available water to crops during seed development. Wetter conditions has led to an increase in relative humidity and potential pest and disease pressures. High rainfall has been coupled with low temperatures which may slow plant growth and potentially result in a late finish to the season, creating some difficulty when cutting for hay. High levels of ground cover have stabilised soils during periods of high wind and rain.

Burra October Conditions:

Average daily maximum temperatures for Burra were lower than usual at 26.2°C; down nearly 10°C from the daily maximum recorded in October 2015. Recorded average soil temperature was 15°C. Low soil temperatures combined with low average degree day value (2.13) may have affected crop and pasture root development. Low average daily evapotranspiration values of 3.5mm in combination with high October rainfall (31.4mm) helped to maintain available soil moisture at depth. Average wind speeds have been fairly high with daily averages of 14.7km/hour and maximums as high as 76.3km/h; high wind speed can have damaging effects on crops, increasing transpiration and causing short term water stress. High relative humidity (71.6%) may increase pest and disease pressures.

Currency Creek October Conditions:

Cooler October conditions were recorded at the Currency Creek Weather station with an average daily maximum temperature of 30°C and an average soil temperature of 16.5°C; these values are down from 37°C and 20.3°C respectively for this time last year. Monthly rainfall was very high for the district with 44.8mm recorded, significantly higher than last year's October total of only 3mm. A relatively low degree day value of 3.6 highlights the decreased energy available for plant development. Recorded maximum wind speed up to 57.8 km/h were potentially damaging to crops and pastures however high evapotranspiration rates during these periods have been offset by the high levels of available soil moisture.

Waikerie October Conditions:

Average daily maximum temperature were also cool in the Waikerie district averaging around 32°C; roughly 5°C cooler than October 2015 records. Cooler temperatures have led to low degree day values with records averaging 4.5, half the recorded 2015 value of 9.3. A combination of low temperature, degree day values, soil temperatures and rainfall may have led to slower than usual crop growth and development in the district.

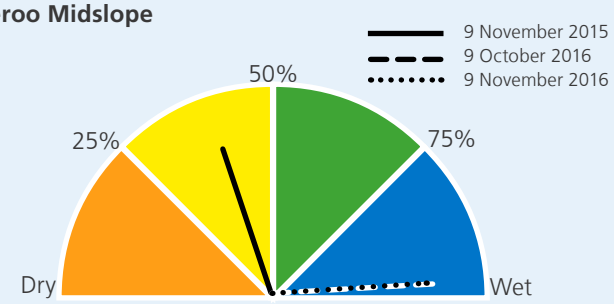
Sherlock October Conditions:

Sherlock recorded high October rainfall with 45mm up from 6.4mm for October 2015. Higher rainfall has led to an increase in relative humidity with average daily records of 70.9%. Higher humidity in the region may have increased pest and disease pressures. Delta T values averaged 3.4 providing good spraying conditions for those aiming to combat disease pressure. Sherlock experienced a relatively windy month with average winds of 12km/hour and gusts up to 75km/hour, high wind may have increased crop transpiration rates creating periods of water stress.

SA Murray-Darling Basin Soil Moisture Probe Network:

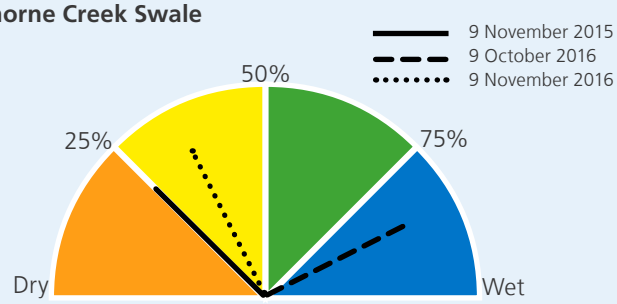
The information below is a dial representation (Dry-Wet) of plant available soil moisture recorded at eight sites from the Natural Resources SA Murray-Darling Basin soil moisture probe network. The information is based on data recorded on 9 October 2016, 9 November 2016 and 9 November 2015. Please note that a full list of soil moisture probes and their associated 'Plant Available Water Dials' within the SA Murray-Darling Basin will be provided in the next edition of Soil Matters. The dials below are provided with support from Agriculture Victoria Soil Moisture Monitoring calculations.

Lameroo Midslope



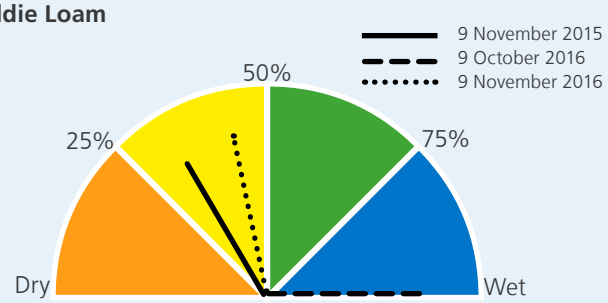
Stored soil moisture has remained near full for the past month. Current soil moisture is significantly higher than 2015 values.

Langhorne Creek Swale



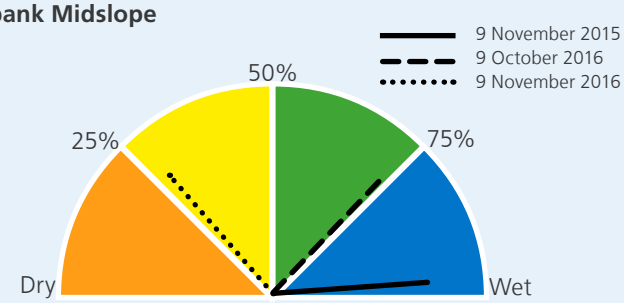
Soil moisture levels have dropped significantly over the last month with 9 November readings indicating the soil is approximately 35% full. Current levels are higher than 2015 records.

Lowaldie Loam



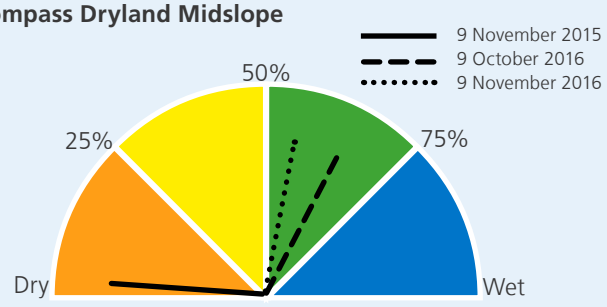
Soil moisture levels have dropped significantly over the month with 9 November levels sitting at approximately 40% full. Current levels are higher than 2015 records.

Lowbank Midslope



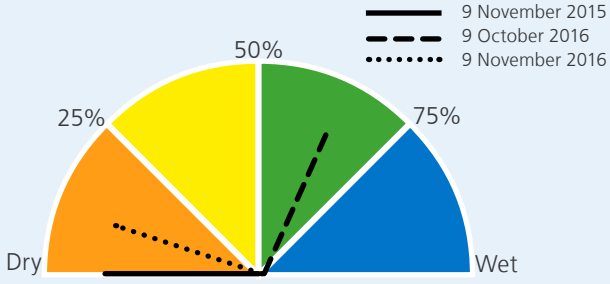
Soil moisture levels have dropped significantly over the last month with 9 November records sitting under 30% full. Current levels are lower than 2015 records which were nearly full this time last year.

Mt Compass Dryland Midslope



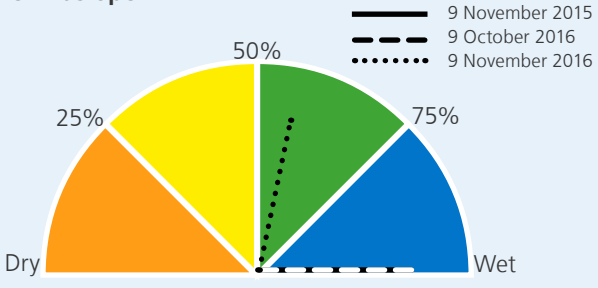
Mount Compass has held onto its soil moisture dropping only slightly from last month. Current levels are approximately 55% full, this value is significantly higher than the near dry November 2015 records.

Pinnaroo Swale



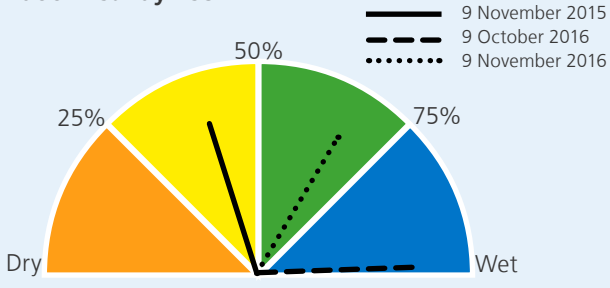
Soil moisture levels have dropped significantly over the last month. Soil moisture records at 9 November are currently less than 15% full. Current levels are higher than 2015 records.

Waikerie Midslope



Soil moisture levels have dropped significantly over the last month. Soil moisture records at 9 November are currently over 50% full. Current levels are significantly lower than near full records for this time last year.

Coomandook - sandy rise



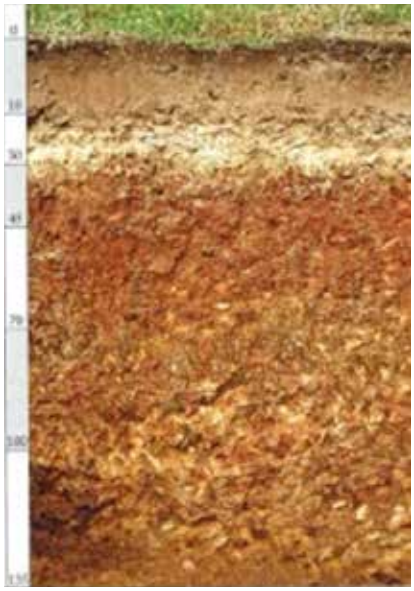
Soil moisture levels have dropped significantly over the last month. Soil moisture records at 9 November are currently less than 60% full. Current levels are significantly higher than the approximately 20% full records from this time last year.

Soil of the month: Acidic sandy loam over red clay on rock

This soil profile information has been compiled drawing on information from 'The Soils of Southern South Australia Volume 1' (James Hall, David Maschedt and Bruce Billing).

Production:

Acidic sandy loam over red clay soil types are widespread in the Eastern Mount Lofty Ranges, making up 0.5% or 73 500ha of South Australia's soils. Usually associated with rocky and hilly terrains these soils predominantly support permanent pastures. The restricted profile drainage and steep sloping geography creates problems for irrigated horticulture and cropping farming systems.



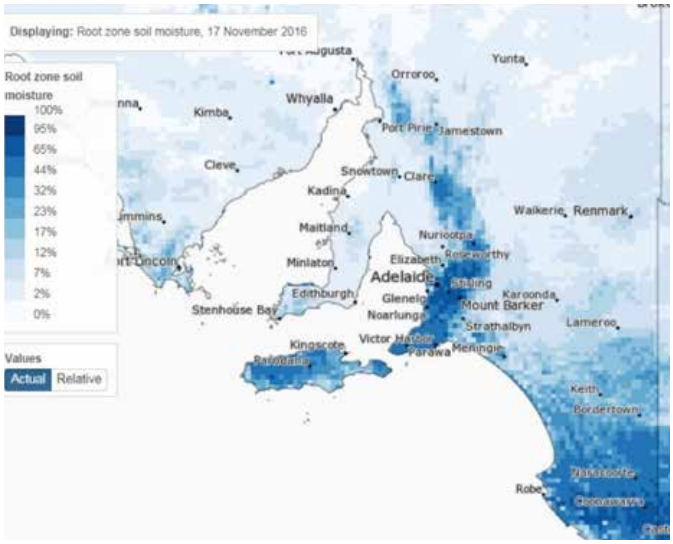
Nutrition:

Acidic sandy loam over red clay soils commonly have moderately low inherent fertility. The surface soils have a moderate to high capacity to retain nutrients however this capacity varies greatly with depth (varying from low to high). Topsoils are mostly sandy loam to loamy sand, ranging from 10-30cm thick with limited structure; gravels of basement rock and quartz are common. The subsoil can be strongly acidic causing a chemical impediment to root growth.

Management:

Surface soils are mostly firm to hard setting, this may affect germination and increase runoff during summer rainfall events. Perennial grasses and native vegetation can help to slow surface water, in turn this may increase infiltration into the soil profile and decrease the risk of erosion. These soil types are neutral to strongly acidic, to prevent nutrient tie up and the effects of aluminium toxicity it is important to regularly check soil pH and any resulting lime requirements.

These soil types can experience some issues with dispersion and waterlogging, irrigation has the risk of exacerbating waterlogging issues. Seepages are often associated with the soil type; this is a complex land management issue which often requires deep rooted perennial trees, shrubs or perennial grasses within the recharge zone to aid the seasonal distribution of water.



Australian Landscape Water Balance, 17 November 2016

www.bom.gov.au/water/landscape/

Collaborative farming

Collaborative Farming in the Eastern Mount Lofty

The Eastern Mount Lofty Ranges has a unique combination of skilled farm managers, fertile soils and high annual rainfall, creating suitable conditions for a diverse range of primary production. These conditions are fundamental to the district's capacity to provide local, fresh and sustainable food and the Eastern Mount Lofty Ranges is perfectly positioned to act as a destination for premium food production. Peri-urban expansion is a contemporary issue developing in parallel for the same district. Individual properties are being divided into smaller parcels of land which are often difficult to manage as profitable farms and expensive to maintain. Collaboration between properties has the potential to help to ease land management requirements, increase on farm profits or simply provide small property managers with more free time.

Natural Resources SA Murray-Darling Basin, together with the Goolwa to Wellington LAP, have explored the potential application of alternative farming models such as collaborative farming for small property managers in the Eastern Mount Lofty Ranges.

Combining research with community feedback, the project has highlighted four models ranging from current practice through to full collaborative farming. The four models include:

1) Individual landholders:

who work independently on property management tasks. The economies of scale often make this as an expensive option, both in terms of money and the time invested. Control over the property is fully maintained.

2) Share farming:

Involves leasing out unutilised land to local farmers and is a common way for small property managers to gain additional income. The land owners must still pay for ongoing infrastructure maintenance and land management costs. This option can help to ease financial and time investments.

3) Brokered Approach:

An external party collaboratively manages a group of separate properties. This approach allows landholders to gain economies of scale and maximise productivity while maintaining control of their property.

4) Collaborative farming:

Groups of agricultural producers acting as a collaborative group to improve their bargaining power in the marketplace, reduce costs by pooling resources, increase production capability and ease the expense of services such as marketing. This option could increase economic returns while also providing land management and lifestyle advantages.

The next phase of the project will highlight the economic and time investments associated with each model. Once we have established any true economic and lifestyle benefits, landholders will better positioned to weigh up their options according to their own time and budgeting capabilities. It would be great to see our own peri-urban districts adopt new and exciting agricultural models such as land managers employed to collectively manage small farms or landholders working together to maximise their land and increase premium food production.

Driven by urban and peri-urban interest in premium food production, the tourism industry and media are now facilitating a greater understanding of food production processes. This provides ongoing employment opportunities such as farmers markets and peri-urban tourism opportunities, and it may also help bridge the 'city country cultural divide'.

Want to know more?

T: Eliza Rieger on 0408 416 684

E: eliza.rieger@sa.gov.au

Riverland storm recovery

The storm that occurred on 11 November 2016 has caused significant damage for many growers within the South Australian Murray-Darling Basin region.

Landholders are encouraged to report details of damage via the **Riverland Storm Recovery Hotline on 0476 834 530.**

This information will be used to build up a picture of the extent of the damage to assist PIRSA's assessment team who will be coordinating future assistance.

Farming together

The $14.9m Farming Together initiative is a national, two-year campaign for primary producers and processors to collaborate and claim marketplace power.

This Federal Government initiative aims to build financial and societal sustainability across Australia's primary producers. Visit our easy-to-use website (www.farmingtogether.com.au) and complete the simple self-assessment – no extensive forms to fill in.

All farmers who register receive a free one-on-one consultation to discuss their opportunities and appetite to create a successful collaborative group. This could be either as a co-operative, as a collective bargaining entity or as a less-formal collaborative group.

The most-promising groups will be offered assistance for product research and development. Areas that are covered include advice on marketing, capital-raising, packaging, logistics and exporting as well as non-ongoing consultancy appointments.

Want to know more?

T: Nick or Andrew on 1800 00 55 55

E: info@farmingtogether.com.au

Sign up for our newsletters at **www.farmingtogether.com.au**

Whats on in the region

Scratching the Surface: Soil Biology in Agriculture

Natural Resources SA Murray-Darling Basin and Adelaide Mount Lofty Ranges are hosting 'Scratching the Surface: Soil Biology in Agriculture'; a forum designed to link soil biology to more sustainable, productive farming systems

- Are you wondering about soil health on your farm and how it effects your productivity?
- Do you want to learn how to encourage soil organisms for the health of your farm?
- Do you want to meet likeminded farmers who are viewing the health of their business from the soil up?

Join us on Wednesday 1 March 2017 at One Paddock Vineyard, Currency Creek and meet leading producers, agro-ecologists and microbiologists to help us understand the latest science and how to apply theory to our practical agricultural and horticultural systems

Contact Jeff Edwards 0437 652 674 or Eliza Rieger 0408 416 684 for more details.

Farmers Markets in the region

Adelaide Hills Farmers Market

Where: 23 Mann Street, Mount Barker
When: 8:30-12:30 every Saturday

Goolwa Wharf Markets

Where: Goolwa Wharf, Goolwa
When: first and third Sunday of every month at 9am to 3.30pm

Mount Compass Produce and Craft Market

Where: Wetland Car park, Sam Court, Mount Compass
When: Markets are held on the first Saturday of January, February, March, April, October, November and December.

Murray Bridge Farmers Markets

Where: The Wharf area, Sturt Reserve, Murray Bridge
When: every Saturday at 8am to 12pm

The Riverland Farmers Markets

Where: Berri Senior Citizens Hall, Crawford Terrace, Berri
When: 7:30-11:30am every Saturday

Strathalbyn Farmers Markets

Where: On South Terrace near the Old Strath Railway
When: Every third Sunday of the month

Contacts

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For more information on natural resources management in the region, the SAMDB NRM Board and its activities, please visit **www.naturalresources.sa.gov.au/samurraydarlingbasin**

Natural Resources SA Murray-Darling Basin

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