SOIL matters

IN THIS ISSUE:

Welcome to Soil Matters, a quarterly newsletter providing updates and information on soil, weather and industry developments to support on-farm decision making within the Murraylands and Riverland region. This newsletter will draw together a number of resources including:

- Local soils and agricultural information
- Murraylands and Riverland Landscape Board weather station network
- Murraylands and Riverland Landscape Board soil moisture probe network
- Upcoming grants, programs and projects relevant to your region.

We would appreciate any feedback on content, or ideas for content and are happy to assist with any inquiries regarding the featured tools and projects. Please contact Zoe Starkey, Regional Agriculture Landcare Facilitator on zoe.starkey@sa.gov.au or 0408 416 684 for more information.

Photo of the month

The farm forestry group discusses managing woodlots for multiple uses on farm. Here the group discuss the role of woodlots for windbreaks and harvesting fire wood. Trees selected for harvest (coppiced trees) can provide the added benefit of providing a windbreak closer to the ground during the regrowth period.

Australian Government | National Landcare Program

Regional Landcare Facilitator

LANDSCAPE SOUTH AUSTRALIA MURRAYLANDS AND RIVERLAND

Soil acidity survey

Soil acidity is becoming more widespread in the Southern Mallee and Upper South East farming districts.

The Murraylands and Riverland Landscape Board have recently funded soil acidity field treatment sites at Lameroo, Karte and Malinong to demonstrate a range of different treatments available. To assist with this and future work, we would be grateful if you could take a few minutes to complete the following survey on soil acidity management as it relates to you and your property

www.surveymonkey.com/r/soilaciditysurvey

Nominate a Landcare Champion for a 2021 State and Territory Landcare Award

Nominations are open for the 2021 State and Territory Landcare Awards which recognises individuals and community groups across the country for their outstanding contributions to preserving the unique Australian landscape. The Landcare Awards support the sharing of knowledge and achievements while promoting leadership and resilience in communities.

Eight national award categories are now open for nominations:

- Australian Government Individual Landcarer Award
- Australian Government Partnerships for Landcare Award
- Australian Government Landcare Farming Award
- Coastcare Award
- Landcare Community Group Award
- Woolworths Junior Landcare Team Award
- KPMG Indigenous Land Management Award
- Young Landcare Leadership Award

www.landcareaustralia.org.au/landcare-awards-2021/

Weed control in warmer conditions

Research by the Western Australian No-Tillage Farmers Association (WANTFA) shows effective use of pre-emergent herbicides, when sowing wheat early in dry conditions, can help the crop out-compete weeds and lift yields.

WANTFA executive director Dr David Minkey says the inability to use knockdown herbicide treatments pre-seeding and the reduced efficacy of some residual herbicides in dry soil conditions is a problem for WA growers.

However trials at Cunderdin show good weed control, and better crop vigour can be achieved when cereals are dry-sown earlier in warmer conditions and pre-emergent herbicides are applied. Research supported by GRDC compared wheat sown in dry conditions on 21 April with wheat sown after a knockdown herbicide was used in wet conditions on 31 May 2011. These trials compared the effects of three pre-emergent herbicides – Sakura® (pyroxasulfone), Boxer Gold® (prosulfocarb and s-metolachlor) and trifluralin in the early and late-sown wheat plots.

Dr Minkey says the research indicated that Sakura® and Boxer Gold® helped control weeds when wheat was dry-seeded early, but the effectiveness of trifluralin was limited on heavy soils. “Overall, Sakura® was the most effective in controlling germination of annual ryegrass in both early and late-sown wheat,” Dr Minkey says.

But it provided even better weed control and yields where it was used on wheat that was dry-seeded early in the season. In dry conditions, early-sown wheat treated with Sakura® yielded 3.5 tonnes per hectare, whereas the late-sown wheat treated with Sakura® following a knockdown herbicide application yielded 2.5t/ha.

While the trials show that Boxer Gold® effectively controlled early annual ryegrass germination, it failed to control subsequent germinations, resulting in a yield of just under 2.5t/ha.

Where trifluralin was used to treat early-sown wheat, the applications were not properly incorporated onto the heavy soil types at Cunderdin, which reduced its efficacy and resulted in 1.3t/ha yields. “However, trifluralin performed well on sandier soils in dry conditions,” Dr Minkey says.

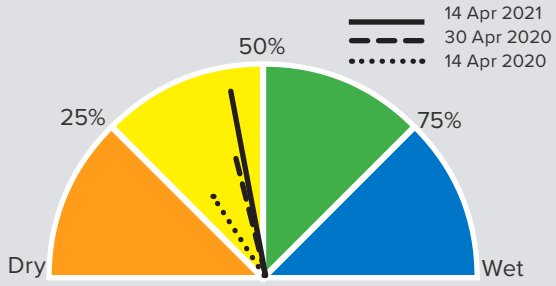
The Rural Industries Research and Development Corporation, the National Adaptation and Mitigation Initiative, Department of Agriculture and Food, WA, and the Federal Government’s Climate Change Research Program also supported this study.

Murraylands and Riverland Soil Moisture Probe Network

This is a dial representation (dry to wet) of plant available soil moisture recorded at eight sites throughout the Murraylands and Riverland soil moisture probe network. The dials are provided with support from Agriculture Victoria. The data is recorded from 14 April 2020, 30 April 2020 and 14 April 2021.

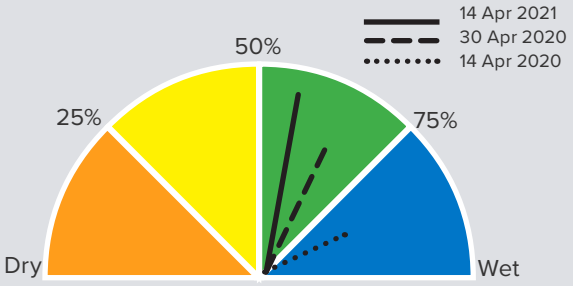
You can view more regional soil moisture data here: www.landscape.sa.gov.au/mr/land-and-farming/tools-for-land-managers/soil-moisture-monitoring-network

Coomandook Sandy Rise (loamy sand over clay sand)



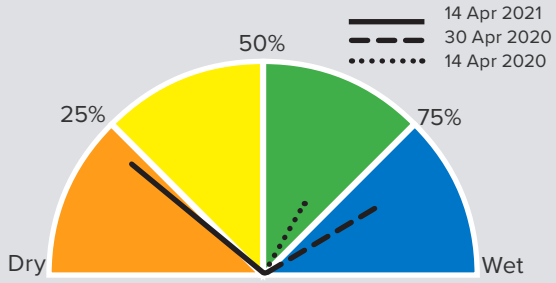
OSR received for (2020-21) of 71.2 mm compares to 63.8 mm for same period in 2019-20. GSR received to date is 1 mm compared to 15.8 mm for the same period in 2019-20. Soil moisture is moderately higher than in the corresponding period in 2019-20.

Lameroo Sandy Rise (sand over sandy loam)



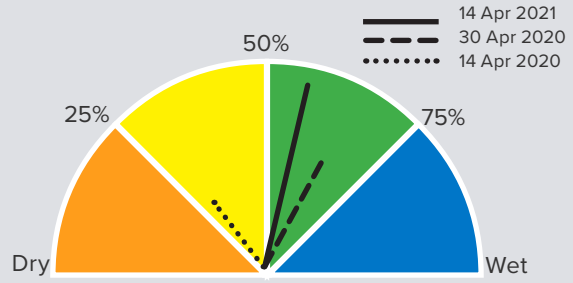
OSR received for (2020-21) of 62.6 mm compares to 76.4 mm for same period in 2019-20. GSR received to date is 0 mm compared to 10.4 mm for the same period in 2019-20. Soil moisture is lower than in the corresponding period in 2019-20.

Lowaldie Midslope (sandy loam over clay)



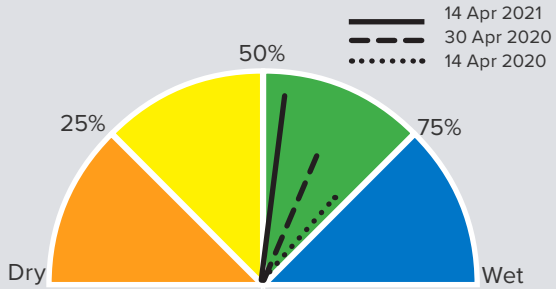
OSR received for (2020-21) of 58.2 mm compares to 117.2 mm for same period in 2019/20. GSR received to date is 1.2 mm compared to 12.2 mm for the same period in 2019-20. Soil moisture is significantly less currently than for the same period in 2019-20.

Moorlands Flat (loam over calcrete rubble)



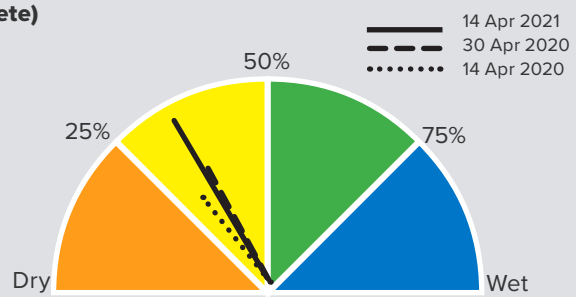
OSR received for (2020-21) of 71.2 mm compares to 63.8 mm for same period in 2019-20. GSR received to date is 1 mm compared to 15.8 mm for the same period in 2019-20. Soil moisture is moderately higher than in the corresponding period in 2019-20.

Pinnaroo Flat (sandy clay over clay)



OSR received for (2020-21) of 43.6 mm compares to 116 mm for same period in 2019-20. GSR received to date is 0 mm compared to 7.8 mm for the same period in 2019-20. Soil moisture is significantly lower than in the corresponding period in 2019-20.

Waikerie-Maggea Midslope (sandy loam over loamy clay calcrete)



OSR received for (2020-21) of 46.6 mm compares to 109.4 mm for same period in 2019-20. GSR received to date is 0 mm compared to 10 mm for the same period in 2019-20. Soil moisture is however largely the same as the corresponding period in 2019-20.

Regional weather station network

AWS summaries

Sherlock – Period January 15 2021 – April 14 2021 compared to same period in 2019-20

Total rainfall for the period was 55.6 mm contrasting with 59.6 mm in the same period in 2019-20. The averaged daily temperature was 18.54 oC compared to 18.36 oC in 2019-20. Relative humidity averaged 60.14% in the 2020-21 period similar to the average of 56.91% in the corresponding period in 2019-20. Soil temperature averages at 15 cm averaged 25.6 oC compared to 24.7 oC in the same period in 2019-20. Growing degree days (T base 10) averaged at 8.73 units per day in the period in 2021 compared to 8.54 units per day average in the corresponding 2019-20 period. Global solar radiation inputs in the 2020-21 period were an averaged 257 W/m2/unit period/day with a lesser 246 W/m2/unit period/day in the 2019-20 period. Marginally lower averaged daily wind-speeds in the 2020-21 period (9.2 km/h) compared to the higher average in the 2019-20 period of 10.4 km/h. Reference crop evapotranspiration calculated at the site also produced an averaged lower daily rate of 4.61 mm/day in the 2020-21 period compared to a higher 4.89 mm/day in 2019-20. Frost hours were negligible across both time periods.

Copeville – Period January 15 2021 – April 14 2021 compared to same period in 2019-20

Total rainfall for the period was 39.8 mm compared to 91.4 mm in the same period in 2019-20. The averaged daily temperature was 19.08 oC and similar to 18.85 oC in 2019-20. Relative humidity averaged 54.92% in the 2020-21 period compared to a marginally higher average of 58.07% in the corresponding period in 2019-20. Soil temperature averages at 15 cm averaged 25.8 oC compared to 24.1 oC in the same period in 20190-20. Growing degree days (T base 10) averaged at 9.17 units per day in the period in 2021 compared to 8.94 units per day average in the corresponding 2019-20 period. Global solar radiation inputs in the 2020-21 period were an averaged 267 W/m2/unit period/day with a lesser 255 W/m2/unit period/day in the 2019-20 period. Marginally lower averaged daily wind-speeds in the 2020-21 period (13.3 km/h) compared to the higher average in the 2019-20 period of 15 km/h. Reference crop evapotranspiration calculated at the site also produced an averaged daily rate of 5.35 mm/day in the 2020-21 period compared to a lower 5.21 mm/day in 2019-20. Frost hours were negligible across both time periods.

Peebinga – Period January 15 2021 – April 14 2021 compared to same period in 2019-20

Total rainfall for the period was 20.4 mm compared to 55 mm in the same period in 2019-20. The averaged daily temperature was 20.1 oC similar to the 19.9 oC received in 2019-20. Relative humidity averaged 49.62% in the 2020-21 period was lower than the average of 53.79% in the corresponding period in 2019-20. Soil temperature averages at 15 cm averaged 27.9 oC compared to 26.3 oC in the same period in 2019-20. Growing degree days (T base 10) averaged at 10.17 units per day in the period in 2021 compared to a lower 10 units per day average in the corresponding 2019-20 period. Global solar radiation inputs in the 2020-21 period were an averaged 275 W/m2/unit period/day with a lower 263 W/m2/unit period/day in the 2019-20 period. Marginally higher averaged daily wind-speeds in the 2020-21 period (11 km/h) compared to the lower average in the 2019-20 period of 10.5 km/h. Reference crop evapotranspiration calculated at the site also produced an averaged lower daily rate of 5.45 mm/day in the 2020-21 period compared to a higher 5.20 mm/day in 2019-20. Frost hours were negligible across both time periods.

Waikerie Dryland – Period January 15 2021 – April 14 2021 compared to same period in 2019-20

Total rainfall for the period was 25.6 mm compared to 67 mm in the same period in 2019-20. The averaged daily temperature was 20.79 oC similar to 20.39 oC received in 2019-20. Relative humidity averaged 51.5 % in the 2020-21 period was less than the average of 55.7% in the corresponding period in 2019-20. Soil temperature averages at 15 cm averaged 26 deg C compared to 25 oC in the same period in 2019-20. Growing degree days (T base 10) averaged at 10.84 units per day in the period in 2021 compared to a lower 10.43 units per day average in the corresponding 2019-20 period. Global solar radiation inputs in the 2020-21 period were an averaged 277 W/m2/unit period/day with a lower 266 W/m2/unit period/day in the 2019-20 period. Wind-speed averages in the 2020-21 period were 10.57 km/h which is similar to the average of 10.59 km/h recorded in the 2019-20 period. Reference crop evapotranspiration calculated at the site also produced an averaged daily rate of 5.5 mm/day in the 2020-21 period which was lower than the averaged 5.20 mm/day in 2019-20. Frost hours were negligible across both time periods.

Other news

SA River Murray Water Calculator helping irrigators plan ahead

As part of DEW's efforts to provide early advice to help irrigators manage their water, the SA River Murray Water Calculator was recently launched.

An online tool, the calculator lets users explore water availability under different scenarios.

The calculator has two main features. Firstly, there is a Personal Water Calculator to help users better understand how much water is available under different circumstances and therefore to help plan for the season ahead.

Secondly, it includes a State Water Calculator to help irrigators better understand how the water available to South Australia is shared.

Senior Policy Officer, Basin Plan Strategy and Implementation Simon Jacobs said there has been a long standing interest from stakeholders to have tools and information to help them better understand water allocation principles, and to be able to easily calculate how much water will be available to them under a range of scenarios.

'The SA River Murray Water Calculator is a big step forward in enabling our stakeholders to have an interactive tool that allows them to explore any water availability scenario, not just those presented in the allocation statements,' he said.

For more information contact Senior Policy Officer, Basin Plan Strategy and Implementation Simon Jacobs: Simon.Jacobs2@sa.gov.au

On-farm Emergency Water Infrastructure Rebate Scheme

South Australian primary producers in drought affected areas can now apply to the On-farm Emergency Water Infrastructure Rebate Scheme under a new round of funding.

You may be eligible to receive a rebate of up to 25% (max $25,000) for the cost of purchasing, installing and repairing on-farm water infrastructure for livestock and permanent horticulture.

Go to: www.pir.sa.gov.au/grants_and_assistance/drought_support/financial_assistance/on-farm_emergency_water_infrastructure_rebate_scheme

Sheep Industry Blueprint

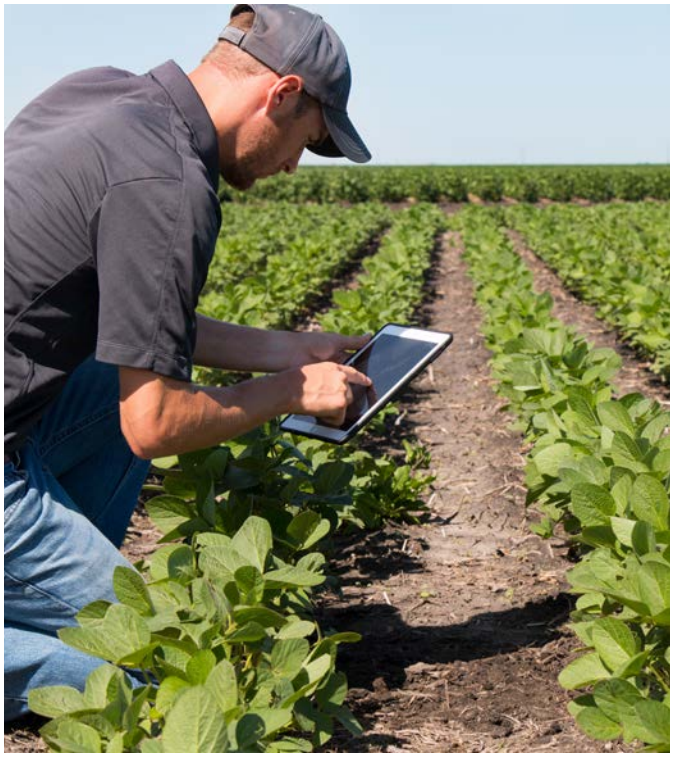
After extensive consultation with sheep producers, organisations and industry representatives, the SA Sheep Industry Blueprint 2030 has been launched. The Blueprint outlines a series of priority investment areas which aim to boost whole of SA sheep supply chain revenue to $3 billion annually by 2030.

To learn more, read the Blueprint.

Producer demonstration site funding applications open

Funding applications are now open for cattle, sheep and goat producer groups throughout Australia who are interested in running local projects to validate the on-farm benefits of research and development findings.

Meat & Livestock Australia is calling for applications for its 2021-22 Producer Demonstration Sites (PDS) program. This includes Levy and Co-Contributor funding options for projects ranging from two to six years.



Grower Profile

Name: Brian D Teakle

Trading Name and Location: Glenholme, Karoonda

Size of Property: 1015 Ha

What are you growing, how many acres and what varieties?

In the past 14 years almost continuous cropping and grazing when not cropped

Livestock, what and how many head?

Up to 1,500 on farm at one time

How long has the property been in the family?

30 years

How has your farming practice changed over the last 5-10 years?

Machinery - GPS systems

Crop varieties – Mainly barley

Soil health – Needs a spell

Have you done any 'in house' trials on your property? What sort of results were achieved? And have you implemented any new practices as a result of those trials?

We have been trialling the establishment of native grasses all over the farm and have established approximately 40,000 trees/shrubs as shelter belts and 120,000 old man saltbush as fodder. Big down side rabbits and scars.

We have set up a woodlot ,seedbank, quandong and sandalwood plantation and a regenerative farming trial plot of about 7 ha using no chemical sprays, that is now entering its 6th year. Each year we have planted native grasses mainly C4 as tube stock and scattered seed using various techniques including ripping ,broadcasting and hand sowing. This year we are adding more C3 grasses as well as cropping with a mix of vetch with a scattering of lucerne, chicory , Bi -serrula and Smart Radish.

The previous 5 years we have had at least a cover crop of barley or oats with lupins ,vetch, lentils, and faba bean mixed in.

In each year it has been grazed down so that we could grow a summer crop of millet (Panicum species) using a double disc opener seeder in late Sept . In each year it has been very good, except last year when, after a very good germination, the rabbits wiped it out in about 2 weeks. We have only ever grazed it to date. We are introducing dorpers onto the farm and are hoping for some changes in our weed control

And finally, do you have any trials planned or exciting ideas for the future?

Yes, setting up in the seed bank area with a number of small plots of kangaroo grass (Themeda triandra), watered during summer with our very saline bore water. Encouraging insect pollinators on farms, including a guide to choosing plants that will support diverse pollinators throughout the year.

Events and Webinars

2021 National Landcare Conference

August 4-6 - International Convention Centre, Sydney. Major themes include sustainable agriculture, environment and climate change, community partnerships in action and landcare impact

2021 Hort connections conference

7–9 Jun 2021, Brisbane Convention & Exhibition Centre | click here for more info and to register

Soil physics workshops – practical measurement & interpretation

23 July (water retention curves: theory, measurement, application) | 24 Sept (saturated hydraulic conductivity: its measurement & use to predict unsaturated hydraulic conductivity) | Waite Campus, Urrbrae | click here for more | delivered by Dr Cameron Grant | "We live in the driest state in the driest continent. The consideration & knowledge of soil physical properties is a vital part of understanding soil function, soil health and productivity" [Soil Science Australia (SA Branch)]

2021 Livestock advisor update SA

29 July, Hahndorf | click here for more info and to register

Ag Excellence – Forum & Awards

9 August, Barossa | save the date!

PLC2021

20–21 Oct 2021, Sydney | click here for more info | the 6th annual conference of the Australian Land Conservation Alliance

Sustainable economic growth for regional Australia conference

SEGRA 2021, 16–18 Nov 2021, Kalgoorlie-Boulder, WA | click here for more info

Safely combining shelter belts & horses (webinar 20:10 min)

Click here to view | hear from local shelter belt expert Jeff Edwards (Hills and Fleurieu Landscape Board) – interviewed by Kym Myall (Horse SA) | also hear the lived experience of a local land manager & horse owner about the ameliorating impact of shelter belts during the Cudlee Creek fire [Horse SA and the Hills and Fleurieu Landscape Board]

Interventions to improve soil health (webinar 46:22 min)

Click here to view | hear from Sue Bestow from the Office of the National Soils Advocate about *'Five interventions to improve soil health'* at a meaningful scale | also see other webinar presentations in the National Landcare Conference webinar series

Regenerative agriculture (webinar of 8 short videos)

Click here to view | what's it all about? | soil scientist Declan McDonald presents on 'regen farming' [Bass Coast Landcare Network, South Gippsland Landcare Network, Mornington Peninsula Shire and Western Port Catchment Landcare Network through funding from the Australian Government's National Landcare Program and Port Phillip & Westernport Catchment Management Authority]

Reduced till in vegetable production

Video (5:27 min) and factsheet | reduced tillage improves soil health, physical condition, plant root growth, drainage & waterholding capacity [Hort Innovation-funded Soil Wealth & ICP project – jointly delivered by RM Consulting Group & Applied Horticultural Research]

See the excellent Trees For Life program of workshops for a range of opportunities to build practical skills

Contacts

Murray Bridge Office
110A Mannum Road Murray Bridge SA 5253
T. 8532 9100 | **F.** 8531 1843

Berri Office
2 Wade Street Berri SA 5343
T. 8580 1800 | **F.** 8582 4488

E. MRenquiries@sa.gov.au

For more information about the Murraylands and Riverland Landscape Board and its activities please visit **www.landscape.sa.gov.au/mr/home**

@MRLandscapeSA

@MRLandscapeSA

@MRLandscapeSA

Murraylands and Riverland Landscape Board

Australian Government | National Landcare Program | Regional Landcare Facilitator | LANDSCAPE SOUTH AUSTRALIA MURRAYLANDS AND RIVERLAND