FARM WALK-Improving Production on Non Wetting Sands & WORKSHOP-Carbon, Climate & your Farm - making sense of it

Thursday 18th August 2022

9.00am - 3.30pm

Light lunch & refreshments provided

See program below & on back Drop in to sessions that interest you

REGISTRATIONS essential;

Email: tstrugnell@coorong.sa.gov.au

Text: 0427 750 050

Register by Monday 15th August

FARM WALK-MLA Sandy Soil Project

Dr Melissa Fraser - *Soil Function Consulting*

9.00am Corner Cold & Wet Road & Richardson Road FIELD

Visit demonstration site treatments; Deep Ripper with inclusion plates, Bednar Terraland, Peats Soil Compost and Fertiliser - exploring soil & plant growth response

WORKSHOP-Carbon, Climate & your Farm

12 noon Coonalpyn Football Club

Dukes Highway COONALPYN

Overview of current carbon climate -Global trends, Climate Emissions Reduction Facility (*CERF*)

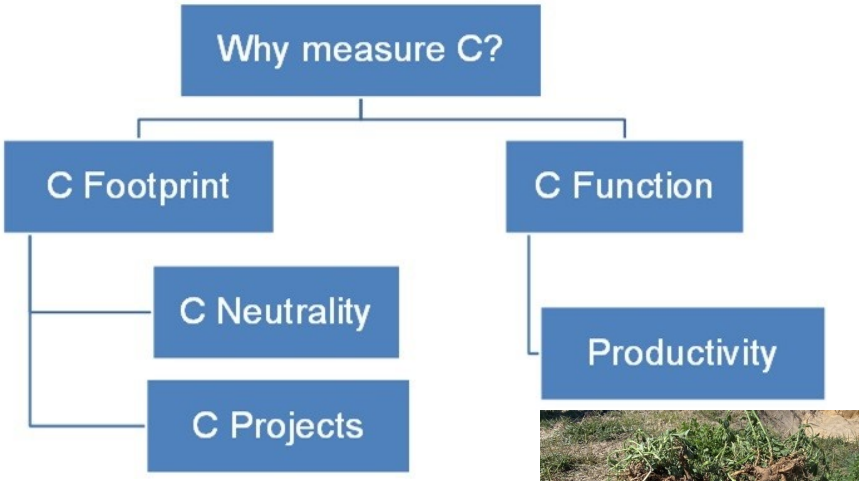
Methane emissions in livestock - can we manage it?
Emma Winslow, SARDI

Seasonal outlook & current climate trends
Darren Ray, Consulting Climatologist

Understanding On Farm Carbon Footprints
Felicity Turner, Turner Agribusiness

The capacity of our soils to store Carbon
Update on recent SA based work
Amanda Schapel, SARDI

CONCLUDING WITH PANEL DISCUSSION



Australian Government
Department of Agriculture, Water and the Environment

Future Drought Fund

FRRR Foundation for Rural Regional Renewal

mla MEAT & LIVESTOCK AUSTRALIA

This project is supported by FRRR, through funding from the Australian Government's Future Drought Fund

COORONG DISTRICT COUNCIL

Coorong Tatiara Local Action Plan

Australian Government

National Landcare Program

Landcare Farming

National Landcare Network

FARM WALK FIELD Improving Production on Non Wetting Sands &
WORKSHOP COONALPYN Carbon, Climate & your Farm - *making sense of it*

Thursday 18th August 2022
9.00am - 3.30pm Light lunch & refreshments provided

Stop	Item	Speaker	Organisation	Location	Time	
1	**MEETING POINT** Corner Cold & Wet Road & Richardson Road FIELD	WELCOME & OVERVIEW OF THE DAY	Coorong Tatiara Local Action Plan	FIELD	**From 9.00am**	
2	**FARM WALK-MLA Sandy Soils Project**	Dr Melissa Fraser	Soil Function Consulting	'Midway' – Richardson Road Meat & Livestock Australia Sandy Soils Demonstration Site *FOLLOW FARM WALK SIGNS*	**9.30am** *2 hours*	
	Travel to	***Coonalpyn Football Club***	**Dukes Highway**	**COONALPYN**	**11.30 am**	**BOOKLET PAGES**
	BBQ LUNCH				**12 noon - 12.30pm**	
3	**Welcome & Introduction**	Tracey Strugnell	Coorong Tatiara Local Action Plan		**12.30pm** *5 minutes*	3. Pre event evaluation
4	**Overview of current carbon climate** Global trends, Climate Emissions Reduction Facility (CERF)	Emma Winslow	SARDI		**12.35pm** *20 minutes*	5
5	**Seasonal outlook & current climate trends**	Darren Ray	Consulting Climatologist		**12.55pm** *30 minutes*	
6	**Understanding On Farm Carbon Footprints**	Felicity Turner	Turner Agribusiness		**1.25pm** *25 minutes*	
	QUICK BREAK				**1.50 – 2.05pm** *15 minutes*	
7	**The capacity of our soils to store Carbon** Update on recent SA based work	Amanda Schapel	SARDI		**2.05pm** *30 minutes*	6
8	**Methane emissions in livestock can we manage it?**	Emma Winslow	SARDI		**2.35pm** *30 minutes*	
9	**PANEL DISCUSSION**	**ALL SPEAKERS**			**3.05pm**	9. Post event evaluation
	FINISH				**3.30pm**	

PRE EVENT EVALUATION

COONALPYN WORKSHOP - Thursday 18th August 2022

WORKSHOP-Carbon, Climate & your Farm - making sense of it

Please complete this QUICK evaluation either by;

Scanning in the logo top right with your smartphone and completing on line, OR

Please complete this paper version, tear out of your booklet and give to Workshop Facilitator Tracey Strugnell

CARBON **1= Low** **5=Average** **10=High**

1. How would you rate your current knowledge around carbon emissions and sequestration?

1	2	3	4	5	6	7	8	9	10

2. How well do you understand the factors that contribute to your farms carbon footprint?

1	2	3	4	5	6	7	8	9	10

3. How would you rate your current knowledge around soil carbon?

1	2	3	4	5	6	7	8	9	10

CLIMATE **1= Low** **5=Average** **10=High**

4. How well do you understand interpreting climate forecasting tools and data to apply to your farm business?

1	2	3	4	5	6	7	8	9	10

METHANE **1= Low** **5=Average** **10=High**

5. How well do you understand on farm methane emissions and how they are calculated?

1	2	3	4	5	6	7	8	9	10

https://www.surveymonkey.com/r/P_COONALPYN

NOTES

Growing Carbon Farming Pilot

The Growing Carbon Farming Pilot is a $1 million initiative to encourage carbon farming adoption and build the carbon market in South Australia.

Grants of up to $100,000 for at least 6 projects will help cover establishment costs, including technical advice and carbon measurement. The program will run for 12 months and funding can also be used to cover participation in PIRSA-led demonstration activities that will build carbon farming knowledge and capacity.

Eligible projects

Interested applicants who are planning, or have an established carbon farming project can apply for funding. The projects must:

- demonstrate a carbon farming method or practice that has application for the South Australian primary industry sector
- demonstrate how carbon farming activities contribute to revenue and jobs in South Australia
- demonstrate and measure the relevant environmental, social and economic co-benefits of carbon farming
- work with PIRSA to improve knowledge and capability, particularly for small to medium farm enterprises, and for larger businesses and other organisations yet to engage with carbon markets.

For more information please contact:

Emma Winslow – Project Coordinator

Emma.winslow@sa.gov.au

Phone: 0427 000 264 between 9am and 5pm, Monday to Thursday

Amanda Schapel - SARDI

Soil Carbon in South Australian Soils

Notes for the capacity of our soils to store carbon presentation

Role of carbon in the soil

Soil carbon is important for the physical, chemical and biological properties of the soil.

There are five functions that are reliant on organic matter (organic carbon (OC) in the soil)

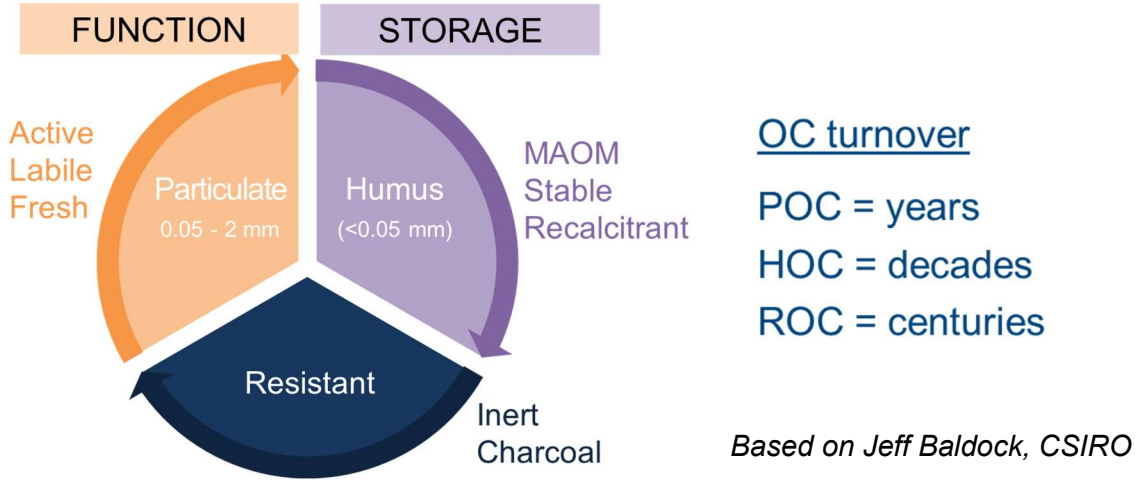
- Productivity or biomass production – increased shoot and root (organic matter) inputs, less bare ground at the surface modifies microclimate affecting microbial activity and soil carbon decomposition
- Water circulation – water infiltration and storage is influenced by soil structure that is improved by aggregate formation from microbial secretions and OC.
- Nutrient cycling – functioning soils retain and recycle nutrients in a suitable form for plants and microbes to use for growth and conversion of POC to HOC (stable carbon)
- Biological organisms – decompose organic matter releasing nutrients and secretions to the soil. The diversity of organic matter (from rotations or multi-species mixes) affects the microbial diversity and disease resilience of the soil.
- Greenhouse gas mitigation – through long term storage of organic carbon in the soil. Organic carbon is made up of different fractions and have different roles and residence time in the soil.

Soil organic carbon fractions

Particulate or active OC has an important role in soil function particularly water, rapid nutrient cycling and energy for biological organisms. It stays in the soils for relatively short periods of days to years.

Humus or mineral associated OC has a role in soil function improving cation exchange capacity and nutrient availability but also has a role in greenhouse gas mitigation with long-term storage in the soil.

Resistant OC is relatively inert and in Australian soils comprises mainly charcoal and products like biochar. It remains in the soil for decades to centuries.



Based on Jeff Baldock, CSIRO

Amanda Schapel
Email: Amanda. Schapel@sa.gov.au
Phone: 0411 137 258
pir.sa.gov.au

Government of South Australia
Department of Primary Industries and Regions
SARDI
SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

Soil Carbon Tests

There are a number of tests available for soil carbon analysis. For general fertility analysis Organic C by Walkley-Black method is most common. However, if using for carbon accounting, you need to select either the total carbon (if no carbonate present) or total organic carbon (if carbonate present)

Carbon type	Method	Measures	Pros / Cons
Total C	High temperature combustion (Dumas - Leco)	Organic and inorganic C	In soils with carbonate can be difficult to measure change in organic C. Use Total Organic C test.
Total Organic C	Acid pretreatment then High temperature combustion (Dumas - Leco)	Organic C	Need to ensure that have complete removal of inorganic C before combustion or results will be incorrect. Use inorganic C test if carbonate suspected
Organic C	Wet oxidation (Walkley-Black method)	Organic C	Incomplete test – measures only 55-80% of total OC
Inorganic C	Calcium carbonate Equivalent MIR analysis	Inorganic C	Can be an inexact test. More exact test and preferred

Boundaries for Agricultural Districts for Soil Carbon Benchmarks

Agricultural districts follow local government (LGA) boundaries and are the same as the PIRSA Crop and Pasture Reports.

<u>Upper South East</u>
Includes LGA Coorong, Tatiara, Kingston

<u>Lower South East</u>
Includes LGA Naracoorte Lucindale, Robe, Wattle Range and Grant.

Amanda Schapel
Email: Amanda. Schapel@sa.gov.au
Phone: 0411 137 258
pir.sa.gov.au

Soil Organic Carbon Benchmarks for the South East Agricultural Districts

Extracted from Schapel A, Herrmann T, Sweeney S and Liddicoat C (2021). Soil Carbon in South Australia: Volume 4 – Benchmarks and Data analysis for the Agricultural Zone 1990-2007. Soil and Land Hub, Adelaide.
Soil Carbon in SA Vol 4 - SA Ag Benchmark Analysis 1990-2007 June 2021 Final.pdf (environment.sa.gov.au)

Upper South East

Proportion of Landuse	
Cropping	54%
Pasture	31%

Annual change in OCwb
0.0103% ↔

*Benchmark topsoil 0-10cm OC Walkley- Black method (%) values for texture and land use displaying the mean and percentile values for the **Upper South East** compared to the mean for the Agricultural Zone.*

	Ag Zone	Ag District Benchmarks						
Texture	***Mean***	**Count**	**Mean**	**25%**	**40%**	**50%**	**60%**	**75%**
Sand	*1.12*	23	1.08	0.90	1.05	1.12	1.19	1.31
Loamy sand	*1.42*	933	1.21	0.85	1.01	1.10	1.24	1.51
Sandy loam	*1.79*	636	1.43	0.96	1.20	1.35	1.50	1.80
Loam	*1.96*	437	1.66	1.20	1.40	1.50	1.70	1.97
Clay loam	*1.93*	308	1.81	1.40	1.59	1.74	1.87	2.13
Clay	*1.66*	288	1.63	1.00	1.26	1.40	1.60	1.92
Weighted Mean (all texture)	*1.77*	2625	1.45	1.02	1.22	1.33	1.49	1.77

Lower South East

Proportion of Landuse	
Pasture	57%
Cropping	28%

Annual change in OCwb
-0.0185% ?↓

*Benchmark topsoil 0-10cm OC Walkley- Black method (%) values for texture and land use displaying the mean and percentile values for the **Lower South East** compared to the mean for the Agricultural Zone.*

	Ag Zone	Ag District Benchmarks						
Texture	***Mean***	**Count**	**Mean**	**25%**	**40%**	**50%**	**60%**	**75%**
Sand	*1.12*	13	1.65	1.29	1.45	1.52	1.57	1.75
Loamy sand	*1.42*	818	1.89	1.19	1.48	1.71	2.01	2.45
Sandy loam	*1.79*	502	2.38	1.48	1.87	2.07	2.40	3.05
Loam	*1.96*	374	2.93	1.80	2.35	2.71	3.12	3.91
Clay loam	*1.93*	526	2.97	1.61	2.32	3.13	3.56	4.11
Clay	*1.66*	262	2.81	1.31	2.10	2.59	3.20	4.10
Weighted Mean (all texture)	*1.77*	2495	2.47	1.44	1.93	2.32	2.70	3.31

Amanda Schapel
Email: Amanda. Schapel@sa.gov.au
Phone: 0411 137 258
pir.sa.gov.au

POST EVENT EVALUATION

COONALPYN WORKSHOP - Thursday 18th August 2022

WORKSHOP-Carbon, Climate & your Farm - making sense of it

Please complete this QUICK evaluation either by;

Scanning in the logo top right with your smartphone and completing on line, OR

Please complete this paper version, tear out of your booklet and give to Workshop Facilitator Tracey Strugnell

1. How would you rate todays session (1- poor, 10-excellent)

1	2	3	4	5	6	7	8	9	10

2. Has todays event increased your knowledge in the following areas (Y or N) - *Please circle*

Carbon On-Farm	Y	N
Climate Forecasting	Y	N
Methane	Y	N
On Farm and Business Resilience	Y	N

As a result of todays events are you likely to follow up on any of the matters covered or make any business / on-ground changes on your farm? - *Please circle*

3. Carbon on-farm

No	Unlikely	Maybe	Likely	Definitely

4. Soil Carbon

No	Unlikely	Maybe	Likely	Definitely

5. Climate and Drought Impact

No	Unlikely	Maybe	Likely	Definitely

6. Methane

No	Unlikely	Maybe	Likely	Definitely

https://www.surveymonkey.com/r/A_COONALPYN

NOTES