UNFS UPDATE

Upper North Farming Systems Newsletter September 2022

Lot's happening around the place... *Ruth Sommerville, EO.*

There's so many things happening within UNFS at the moment it's hard to work out where to start! We won an award! The 2022 Ag Ex Alliance Grower Group Award provides us with $5000 from PIRSA to run a series of events for our Next Gen Farmers Hub in 2023. Exciting times!

Extension season is underway & there are so many great events to go to & trials / demos to see. So much so we think we may have overwhelmed you! We would love to know your thoughts on the format of our events this year & what has interested you or what hasn't? At the Expo next week we'll have some butchers paper up for you to anonymously put down your thoughts. We want our events to meet your information and networking needs...so let us know what you want to see & do!

The Expo is going to be a fantastic day of information and networking...the morning is in the hall with concurrent sessions to enable you to pick and choose the topics. The afternoon we head to the field to check out a stella line up of trials. Encourage your neighbours to come along too...new members always welcome! Full details on pages 2/3.

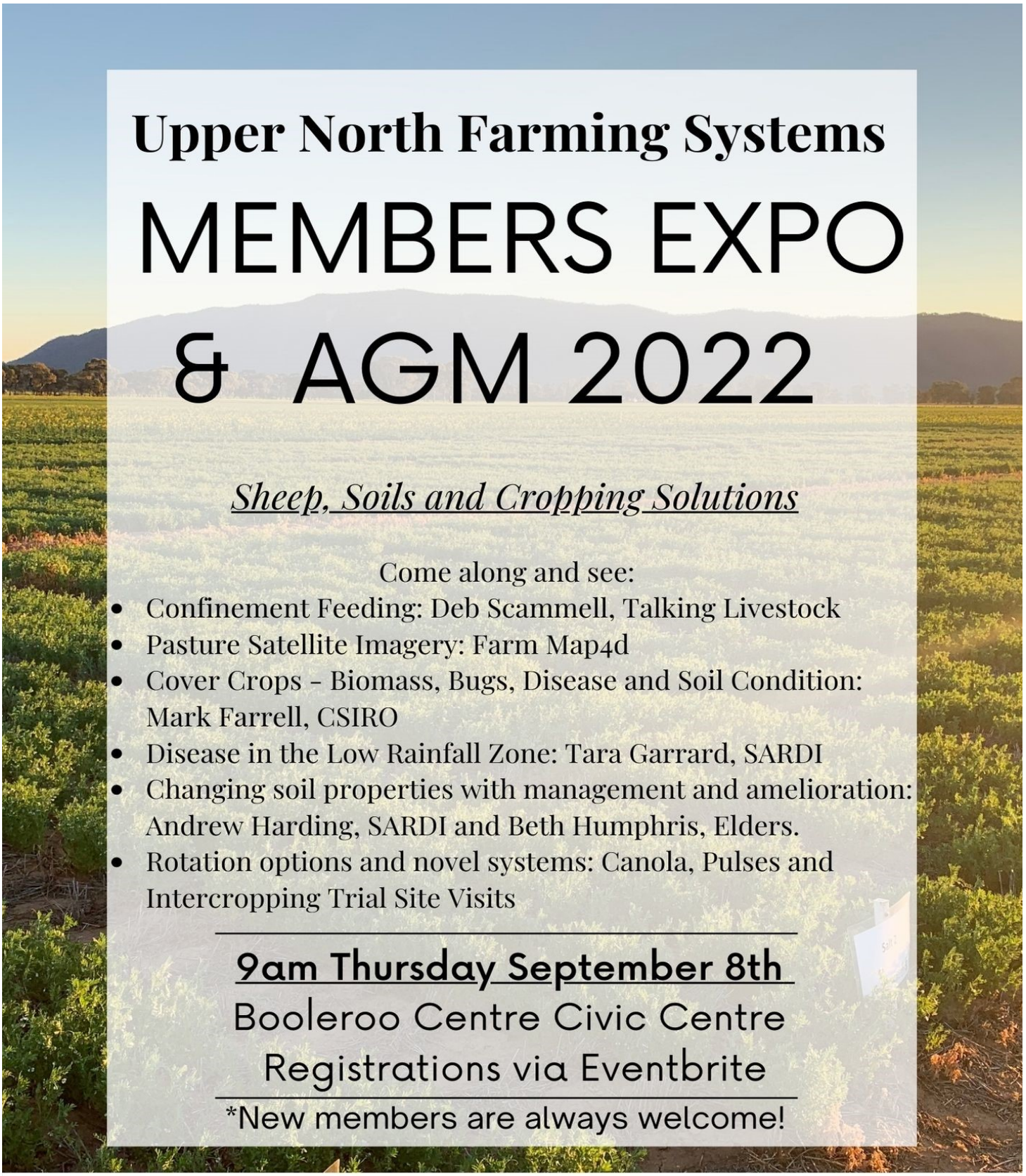
The first of the crop walks/sticky beaks kick off this week with the Nelshaby Ag Bureau Western Crop Walk on Friday. The Eastern events have been split in to 2 as the sites are pretty spread out this year. The Northern Sticky Beak Sesh is on the 20th of September starting at Black Rock, whilst the Southern will be on the 15th of September starting at Jamestown. The Southern Sticky Beak Sesh (pm) is being run in conjunction with the AgXtra event (am) with a combined lunch after the Syngenta Learning Centre visit (a full suite of crop protection chemistry on display) at the Jamestown Racecourse. More details on pages 4-6.

The MLA PDS sites are all kicking off, the first year of 3 years of demos/events. These groups have some spaces in them at the moment and the core members get to guide the content of the demo's and the workshops...so make sure you speak to Rachel (lambing, genetics and livestock condition) and Morgan (pasture options and management) about getting involved.

We are currently pulling together a number of grant applications and will start our annual collation of ideas and priorities at the Operations Committee Meeting on the 28th of September. Please send through your ideas/issues to your hub reps so we can make sure our project submissions are meeting your needs. Speaking of hub reps...we have 2 vacancies up for grabs at the expo...we'd love to have you join the team. Flier in the newsletter for more info. Nominate at the AGM on the 8th of Sept!

We've been recruiting the last few months and have had a great response this time, with interviews for 2 positions happening over the next week. I look forward to announcing our new staff in the coming weeks. With this excitement of new staff, I am sad to say that this will be my last newsletter as Executive Officer. I am taking some time to spend with the family and so have stepped down from my role. I hope there will be a place for me to continue to work on specific projects and activities with the group in the future, as I have a deep affection for UNFS and all the team that make it a truly amazing organisation. Thanks for a fabulous 9 years!

In This Issue



Upper North Farming Systems

MEMBERS EXPO & AGM 2022

Sheep, Soils and Cropping Solutions

Come along and see:

- Confinement Feeding: Deb Scammell, Talking Livestock
- Pasture Satellite Imagery: Farm Map4d
- Cover Crops – Biomass, Bugs, Disease and Soil Condition: Mark Farrell, CSIRO
- Disease in the Low Rainfall Zone: Tara Garrard, SARDI
- Changing soil properties with management and amelioration: Andrew Harding, SARDI and Beth Humphris, Elders.
- Rotation options and novel systems: Canola, Pulses and Intercropping Trial Site Visits

9am Thursday September 8th

Booleroo Centre Civic Centre

Registrations via Eventbrite

*New members are always welcome!

For further info contact Kristina Mudge on M: 0438 840 369 or visit https://unfs.com.au/events/

UNFS

Upper North Farming Systems

Upper North Farming Systems Annual Expo & AGM.

From 9am, Thursday the 8th of September 2022 at Booleroo Centre Civic Centre, followed by an afternoon tag along tour of trials around Booleroo.

The 2022 Upper North Farming Systems Group Members Expo will focus on "Sheep, Soils and Cropping Solutions" with a great line up of expert speakers and farming case studies working through implementation on your farm.

Commencing at 9am, we welcome you all to grab a coffee or tea as we hold our Annual General Meeting at 9.35 am followed by the drawing of our Topcon/Ag Tech Services Lottery prize. All members that have attended an event in the past 12 months, including the expo, are in the draw for nearly $10,000 worth of TopCon Guidance Equipment.

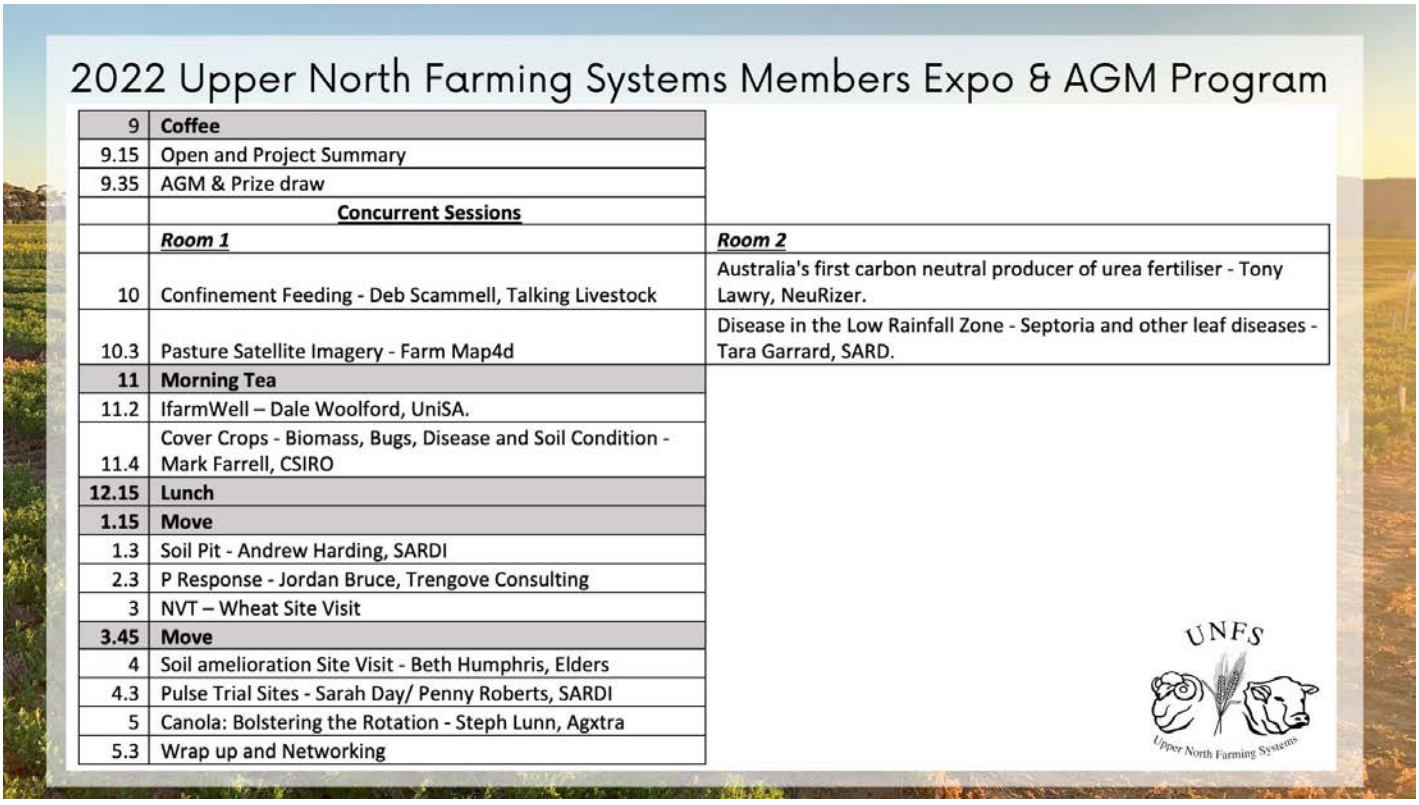
Concurrent sessions allow attendees to select their topics of interest with sessions on Confinement Feeding, Pasture Monitoring using Satellite Imagery, Carbon Neutral Urea, and Foliar Disease in the LR Zone.

Following lunch, proudly provided by NAB, the event will take to the road visiting 6 soil and cropping systems sites including:

- Impacts of land management on soil structure
- Barley NVT
- Novel Cropping Systems
- Understanding and Ameliorating Clay Soils
- Canola in the rotation
- P Response

The event will wrap up with a networking session at our last trial site visit to discuss the ideas and learnings from the day. New members always welcome. Attendance free for members. Register via Eventbrite to attend: https://www.eventbrite.com.au/e/unfs-members-expo-agm-tickets-392148866817

Membership details and up to date full program on the Upper North Farming Systems website www.unfs.com.au or contact Kristina on admin@unfs.com.au



UNFS & NELSHABY AG BUREAU WESTERN CROP WALK

September 2nd, Starting at 8.30am.

Meet at Brendon Johns' Farm: 26 Milcowie Road, Warnertown,
to jump on the bus ready for the tour!

Alternatively you can meet the group at the first site, 9.30am at 15641 Augusta Highway, Baroota.

BBQ lunch is proudly sponsored by Viterra.

Please RSVP to Nathan Crouch on 0407634528 for further information about the day.

UNFS
Upper North Farming Systems

AGRICULTURAL BUREAU OF SOUTH AUSTRALIA EST 1888

VITERRA

Visiting the following sites :

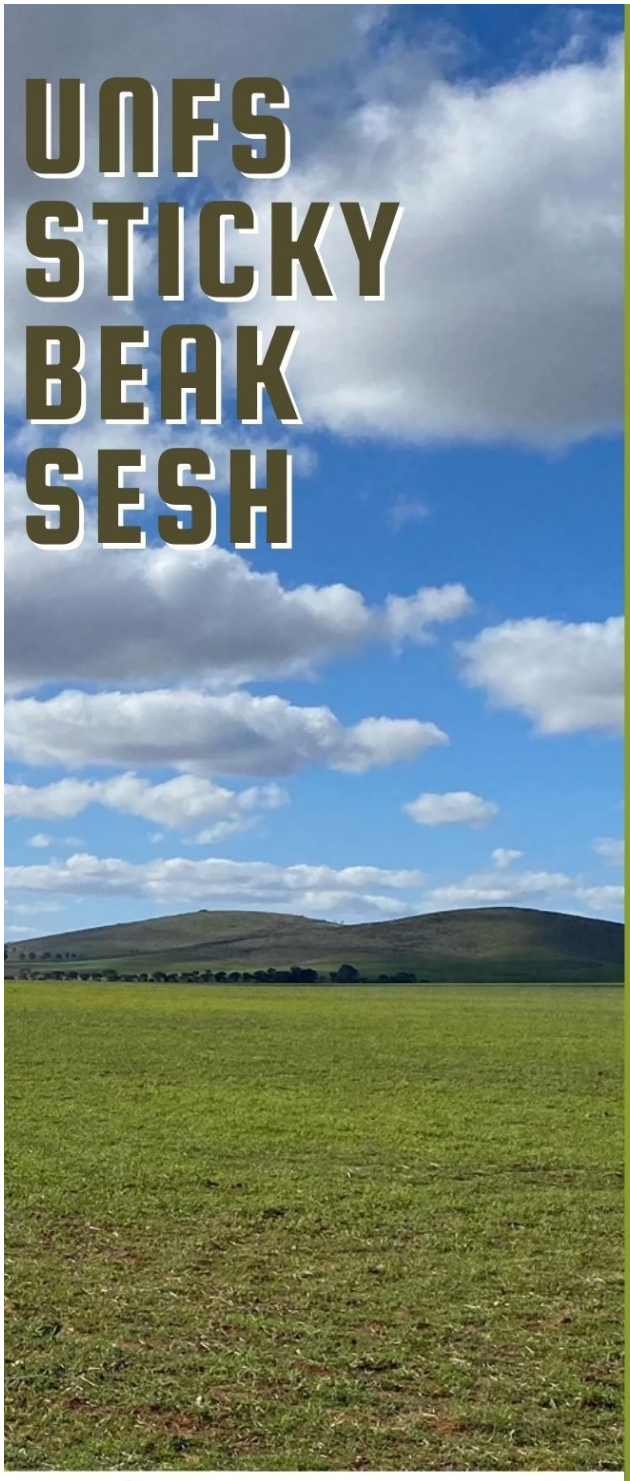
Marg Evans/Barry Mudge: UNFS/SAGIT Crown Rot Management Site – Mambray Creek

Stefan Schmitt: Spiny Emex (Three Cornered Jack) Management in Lentils – Wanderah

Stefan Schmitt: Crop Establishment in Saline Soils – Lower Broughton

Penny Roberts/Dylan Bruce: SARDI Pulse Extension Site – Warnertown

Agxtra: UNFS Canola Profitability Trial – Wandearah



South-Eastern Edition

11.30am Lunch Provided

SYNGENTA LEARNING CENTRE

Located at the Jamestown Racecourse, Agxtra

1pm

SELF-REGENERATING LEGUME PASTURES

Located at Canowie Belt. Beth Humphris, Elders.

2.30pm

MLA PRODUCER DEMONSTRATION SITE

Alison Henderson's Farm, Caltowie, Morgan McCallum, UNFS.

Come along and have a sticky beak at the UNFS Eastern Trial sites.

15th September, 11.30am

Running in conjunction with the Agxtra Spring Field Day, meet at the Jamestown Racecourse.

RSVP's through eventbrite. Please contact Morgan McCallum on 0459718181 for any further information.

UNFS Upper North Farming Systems

AgXtra

Producer Demonstration Site

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UNFS STICKY BEAK SESH

Northern Edition

1pm — **MEDIC VARIETIES TRIAL**
Located at Jim & Tom Kuerschner's Farm, Black Rock. David Peck, SARDI

2.30pm — **CANOLA PROFITIBITY TRIAL**
Located at Morchard. Andrew Catford, Northern Ag.

3.30pm — **MLA PRODUCER DEMONSTRATION SITE**
Located at Richard McCallum's Farm. Morgan McCallum, UNFS.

Come along and have a sticky beak at the UNFS Northern Trial sites.

Meet at Jim & Tom Kuerschner's paddock.
When: 20th September
Time: 1PM

RSVP's through eventbrite. Please contact Morgan McCallum on 0459718181 for any further information.

SARDI
SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE
SAGIT
UNFS
Upper North Farming Systems
Producer Demonstration Site
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AgXtra Research Partners for Crop Innovation

JAMESTOWN AGRONOMY CENTRE

SPRING FIELD DAY

THURSDAY 15th SEPTEMBER

DEMONSTRATING THE FOLLOWING;

- Wheat, barely and canola variety trials
- Bio stimulants + biological fertilisers
- Hyper yielding wheat trial
- New herbicide technologies
- Syngenta Learning Centre
- Leading industry guest speakers

8:00 AM	Meet at Jamestown Agronomy Centre **'CATFORDS' 4411 WILKINS HWY, JAMESTOWN** *Coffee available for purchase on arrival
8:20 AM	Official start and introduction
8:30 AM	Presentations from leading technical support and product development partners
11:00 AM	Move to Syngenta Learning Centre **'JAMESTOWN RACECOURSE' RACECOURSE ROAD**
1:00 PM	Lunch at the gunclub

20 years IN 22

For further information contact:

STEPH LUNN
0430 113 583
slunn@agxtra.com.au

NEIL WITTWER
0422 057 715
nwittwer@agxtra.com.au

UNFS Trial Update: MLA Producer Demonstration Site: Improved Pasture Management Systems

Morgan McCallum

UNFS have three pasture management sites located in Caltowie North, Melrose and Pekina.

All three sites have had their pre-graze pasture measurements taken, these included a feed test, biomass cuts and pasture composition. All three sites currently have sheep grazing the trial and the sheep will be due to come off the trial in the next few weeks. Once this has happened, the site will undergo post graze pasture measurements.

We have the involvement of Breezy Hill Precision Ag Services, Farm Map 4D and Cibo labs running satellite imagery, remote sensing and ground truthing on all of the sites.

We will be visiting all three of the sites in the upcoming extension season through the UNFS sticky beak days. Keep an eye out on socials and your emails for more information regarding this!

A huge thank you goes out to our land holders Alison Henderson, Kendrick McCallum and Richard McCallum for hosting the trials this year.

Figure 1: Caltowie North pasture site, photo taken August 1, 2022

Producer Demonstration Site

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MLA PDS: Lotsa Lambs – Improving Reproduction Success—Trial Update

Rachel Trengove

UNFS has implemented two demonstration sites this year for PDS: Lotsa Lambs. Sheep producers Alison Henderson located near Caltowie, and Andrew Kitto near Gladstone. Sheep were pregnancy scanned and split into single and multiple bearing ewes. The scanned multiples were then split into smaller mobs for lambing. Lamb marking and weaning data will be collected for each mob to assess lamb survival rates as a result of these management practices. The aim of these two sites is to demonstrate that the adoption of best management strategies including pregnancy scanning and selective management of singles and multiples as well as smaller mob sizes at lambing for multiple bearers, can improve the reproductive performance of sheep flocks in the Upper North of South Australia.

Two additional sites will be established next year as part of PDS: Lotsa Lambs, focusing on ewes in confinement. These sites will be located at Caleb Girdham's property at Melrose and William and James Heaslip's property at Appila and aim to demonstrate the selective management of single and multiple bearing ewes in containment using condition scoring and targeted feeding in order to increase lamb and ewe survival rates.

Workshops, field days, site visits and case study reports over the next two years will provide a learning opportunity around improving sheep reproduction success for sheep producers in the Upper North. If you'd like any additional information about the project or would like to be involved, please contact Project Officer -
Rachel Trengove, 0438452003, rachel@unfs.com.au

Producer Demonstration Site

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UNFS Tools, Technology and Transformation Event Report

Morgan McCallum

The UNFS Tools, Technology and Transformation field day event was held on Thursday 14th of July 2022 at the Melrose Showgrounds, SA. There were a wide range of technology and transformation based presenters across both livestock, cropping enterprises data communication systems. There was a total attendance of 70 people which included attendees, stall holders, presenters and UNFS staff. With a total of 17 presenters and 20 stall holders, there was a lot to see and do on the day.

The day commenced with three presentations in the main hall. Firstly, Rick Llewellyn from CSIRO presenting on his work with virtual fencing; what has been done and what is left to test before being commercially available. Secondly, Ed Scott from Field Systems Australia presented on Soil Carbon work on behalf of Perennial. Ed provided information on what the trial was showing and the future steps towards this important topic. Lastly, Dominic Coscia from SARDI presented on the tech that has been implemented on the farm scale throughout each of the SARDI and PIRISA demonstration farms.

Figure 1: Attendees in the main hall for the morning session of presentations.

Lunch provided an opportunity to mix and mingle with each other and network with stall holders who each gave a short presentation on their business.

Following lunch, nine concurrent workshops were held. Three workshops on cropping, two on livestock and three on data systems.

The three cropping sessions were Seeding prescriptions and variable rates mapping presented by Jess Koch, Breezy Hill Precision Ag Services and Beth Humphris, Elders. Followed by a presentation from Barry Mudge (consultant) and Darren Pech from Elders on resilient rotations. Lastly, Jess Koch and Beth Humphris presented on Satellite Imagery to Improve in-season decision making.

Figure 2: Trade stalls on the day. All trade stalls received a 10 minute timeslot where attendees could hear from them about their business.

In the livestock sessions, Michelle Cousins from Cousins Merino Services joined us virtually and Jodie Reseigh from SA Sheep Connect (in person) presented on using EID's and ways they can be introduced and used into your sheep program on farm. Following on, Dan Roe from Neogen presented on sheep genomics and how to use and gain this data on farm.

In the data systems workshops, Stephanie Dickson from Mallee Climate services presented on The Climate Services for Agriculture (CSA) prototype which helps Australian farmers to adapt to climate variability and related trends and thereby improve the viability of their businesses. Tim Stockman presented on data communication systems and telecommunication in rural areas. Lastly, Leighton Wilksch presented on the weather station network that is located in the Upper North Region.

The weather permitted an afternoon drone demonstration provided by Xtreme Drones and the WSB Distributors Ag tech team. Information was provided on the technical side of both drones present and attendees were given a comprehensive demonstration on their capabilities.

Final presentations from Shane Oster, Alpha Group Consulting speaking on water telemetry and water management through technology, with Scott Michael (far north landowner) providing an insight into the technology they have implemented on their property. Lastly, Royce Pitchford from Pinion Advisory presented on how to plan for technological changes on farm and the steps that need to be taken from a farm and management perspective.

A fabulous day out, concluding with a networking session with help from the BMW Football Club members.

Figure 3: Attendees observing a drone demonstration given by WSB Distributors and Xtreme Drones.

Cont. Pg 10

A huge congratulations to Colin Becker for winning the lucky seat draw at the Tools, Technology and Transformation Day. Colin was lucky enough to win a drone that was very kindly donated by WSB Distributors.

Upper North Farming Systems would like to thank the following Community Groups for their assistance with the event:

Booleroo Centre Lions Club

The Mount Remarkable Agricultural Society

BMW Football Club

This event is supported by FRRR, through funding from the Australian Government's Future Drought Fund, Australian Government National Landcare Program and Landscape SA Northern and Yorke.

Tools Technology and Transformation Ag Tech Hub Event

Morgan McCallum

The last of the Tools. Technology and Transformation hub events are well underway. On the 24th August, the Ag Tech hub along with 7 growers went to Luke McCallum's property in Melrose to have a sticky beak at his fully automated feeding system. Luke plans on using this for containment feeding and gave the group a great overview of the feeding system and how it can be used in different situations and the type of feed that can be put through the system. Luke also provided insight on how the installation process can be done and gave examples of how other producer use these types of feeding systems. The group also viewed auto flushing troughs that were about to be installed in the containment yards.

Figure 1: The group checking out the feeding system

PDS: Lotsa Lambs – Improving Reproduction Success Event Report

Rachel Trengove

PDS Lotsa Lambs ran its first workshop on 28th June in Don Bottrall's shearing shed, followed by a visit to Alison Henderson's farm which is one of our Lotsa Lambs Producer Demonstration Sites (PDS). Guest speakers for the day were Michelle Cousins, Cousins Merino Services, Andrew Michael, Leahcim Stud, Snowtown and Alison Henderson, Caltowie.

Michelle shared her extensive experience on how to get the most from pregnancy scanning including benefits of splitting single and twin bearing ewes and managing smaller mob sizes at lambing. She said that pregnancy scanning gives producers a good indication of reproduction potential which allows them to realise any production loss that is occurring and manage those factors accordingly. It provides the baseline data to make decisions to improve productivity. Twin lamb survival rates is where Michelle sees significant losses and therefore potential gains to be made in this area with the feed on offer being a crucial factor for twin bearing ewes. EID use can provide easier management of underperforming ewes when it comes to reproduction success. Michelle showed evidence from research of a direct correlation between larger mob sizes and reduced lamb survival in the order of a 2-2.5% reduction in survival for every 100 ewe increase. Around the 200 ewe mob size was recommended to reduce mismothering. Paddock type is very repeatable for lamb survival, for example 130% survival will be repeated year after year and can be used in decision making around management of lambing mobs.

Figure 1: Andrew Michael presenting

Andrew brought a wealth of knowledge to the day and shared his experience in genetic improvement in sheep. In Andrew's opinion, flock profiling is money well spent. He showed evidence of profitability as a result of selecting on genetics and how we can use our flock profiling results to value add. As a start, undertaking flock profiling on lambs or hoggets was recommended, followed by ram selection accordingly and then re-testing 3 years later to track genetic progress. Hoggets need to be DNA tested before classing to ensure a true representation of your current genetics. Andrew ran through a demonstration of interpreting flock profiling results and use of the RamSelect App. He said that ram selection is arguably the biggest genetic gain in your flock and use of ASBV's can speed up genetic improvement, however phenotype still needs to be considered in the selection process. Since the workshop, a group of nine producers have decided to do flock profiling on their sheep and we will meet at the beginning of September with Andrew to guide us though interpretation of results and set a clear breeding objective.

Alison Henderson also presented at our workshop giving an insight into their business and sheep enterprise and sharing her experiences with improving genetics in her flock. Alison emphasised the importance of establishing a clear breeding objective. She said that if she is going to push for improved reproduction there will be sacrifices in other areas, but the breeding objective ensures a balance is met. Management of her flock is based on Lifetime Ewe Management Principles (LTEM) and most of the concepts discussed during the workshop have already been adopted by Alison giving the group a great practical overview of benefits of best practice in sheep production. We visited the PDS site nearby to Don's shed where electric fencing has been used to reduce paddock size in order to run lambing ewes in smaller mobs. Water points were placed in the middle of paddocks, parallel to the electric fencing, running the wire across the trough which has worked well for the lambing period.

Figure 2: Alison Henderson's

Producer Demonstration Site

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Burra to Bird Lake Tour

Regenerating Goyder's Line

June 30th we boarded a bus from Burra, bright and early, after a hot toastie and coffee from the bakery. Consultants, researchers, soil scientists, ecologists and farmers all passionate about improving the landscape function and productivity of the low rainfall country along Goyder's Line.

The project team for Regenerating Goyder's Line includes Anne Brown (Consultant), Glenn Christie (Succession Ecology), Andrew Fairney (Seeding Natives Inc), Mick Durant (Greening Australia), UNFS (Ruth Sommerville) and the landholders Paul Rodgers, Broom Hilder and Mark Ludgate. The tour visited 4 sites through-out the day with 35 people joining in along.

Fig 1. Ulooloo put on the weather with freezing and wet conditions. The site adjoins an iron grass population seen here.

The morning included 2 Grassland sites: Ulooloo at Hallett with Rob Hall and Gumbowie at Peterborough with Mark Ludgate. The Ulooloo site was sown last year and is really starting to get going and will operate as a seedbank for future seeding and self blown seed across the block. Gumbowie has recently been seeded and will be rested to establish for 12 months prior to being returned to a modified grazing rotation to maintain species diversity.

Fig 2. Gumbowie, a sandy loam site with some grassland cover, looking to increase diversity, production and reduce water run-off.

After lunch, a very hearty pie and ice coffee from Orroroo, we moved on to shrubland restoration sites. First was Rodgers property, at Bruce near Quorn. This site is a heavy clay pan with salinity issues and is predicted to be a hit & miss trial...some species and some of the seeders just may not work on this site. But some will and that is where the beauty of these trials lie...nutting out the failures for others to learn from.

Fig 3. At Ian and Paul Rodgers Block near Quorn…and the sun came out!

Then on to the Ash Dam at Port Augusta with project lead Glenn Christie. Once a toxic wasteland covering Port Augusta in dust pollution with every wind after the decommissioning of the power station, it was an inspiration to visit. It showed what can be possible...and that it can be done at a reasonable rate… and reasonability quickly. Don't get me wrong...this site has cost millions to repair...but the system of revegetation and creating an ecosystem on the surface that will build soil is one that can be easily adapted to farming country...in fact it is actually an adaptation of farming practices!

Fig 4. As the sun was getting low we gathered for a "stayers" photo prior to heading home from the Ash Dam. The saltbush behind and groundcover in front are all < 5 years old and growing on top of a highly hostile environment.

Regenerating Goyder's Line is all about re-building the soils and function of this agricultural zone, and we do that through trial and error and great conversations. This trip was a perfect example of this. Great mix of project team and landholders discussing soil function and role of native and non-native pastures in re-building function and productive pastures.

The bus tour was made possible by funding from the Northern and Yorke Landscape Board as part of the Living Flinders Program funded by the Australian Government's National Landcare Program. Regenerating Goyder's Line Project is funded by the Australian Government's National Landcare Smart Farms Program. Thank you to the landholders: Rodgers, Hilders, Ludgates and Halls (alternative project), for allowing this work to happen on your farms.

UNFS Nelshaby Tools, Technology and Transformation Hub Bus Tour

The Nelshaby Agricultural Bureau undertook a two day investigative trip to Eyre Peninsula sponsored in part by the Tools, Technology and Transformation funding from UNFS.

After an early start on Monday, August 15 from Port Pirie, we travelled to Buckleboo to look at a SA Drought Hub strip and disc trial on Vandeleur's farm. This trial was set up in 2022 but is intended to run for several years to analyse the benefits and disadvantages of this type of farming system compared with conventional knife points. This year, the main issue being investigated is the impact and effectiveness of different herbicide packages on crop safety under the different systems. Good discussions were had with the Vandeleur's about their farming system and why they have moved to disc seeding.

Nelshaby Ag Bureau members inspecting the SA Drought Hub Early Seeding Trial near Mitchellville.

We then travelled to the Minnipa Agricultural Centre and inspected trials with the Acting Farm Manager and also the Local Drought Hub coordinator Fiona Tomney. Crops and pastures on the Ag centre were in very good condition with the ideal season. We inspected and discussed a local pasture trial which was studying the benefits of mixed pasture species on productivity.

We completed Day 1 by visiting Bruce Heddle, a farmer near Minnipa. Bruce provided us with an excellent overview of his mixed farming system, including the inspection of some very nice crops. Bruce then joined us, along with a number of other local farmers, at the Wudinna Hotel for an evening meal and further interesting discussions.

Inspecting Polda Reservoir, an early water harvesting scheme near Wudinna.

Next morning, we went to Polda Rock, near Wudinna to inspect a water harvesting scheme which was important in supplying water to the local area during early closer settlement. We then travelled to Elbow Hill, near Cowell, to discuss a low rainfall rotational grazing system being established by local farmer Greg Williams. Greg is using mixed pasture species along with innovative grazing techniques to improve productivity of very marginal cropping land. A learning highlight here was the flexibility Greg was building into his farming system to allow him to respond to the high level of climate variability inherent in this region.

We then moved to Lucky Bay to inspect the T-Ports development with Tim Gurney, Business Development and Client Relations Manager. This impressive development uses a 3000 tonne barge to load large grain vessels in the deeper waters in Spencers Gulf. The barge will be shared with the new T-Ports development at Wallaroo.

The final stop for the trip was to an SA Drought Hub early sowing trial at Mitchellville. This trial is using innovative methods to try to improve crop establishment under marginal soil moisture conditions which often occur early in the season. Unfortunately for the trial (but fortunate for the local farmers!), the area had experienced an excellent seasonal opening and the crops were all very good. Repeating this trial in future years may be beneficial.

Overall, the trip was highly regarded by participants. It provided excellent learning opportunities along with the strong social benefits of travelling with like-minded people investigating issues of common interest. We are very appreciative of the sponsorship support from both the TTT initiative from UNFS and the SA Drought Hub.

Australian Government
Department of Agriculture, Water and the Environment
Future Drought Fund
FRRR Foundation for Rural Regional Renewal
Agricultural Bureau of South Australia EST 1888
UNFS Upper North Farming Systems

The Carbon Conundrum

By Oli Madgett

The opportunities and commentary for farmers around carbon is noisy, conflicting and confusing right now. As a grapegrower myself, I can see that sustainability and climate change is going to be a major influence on all of our lives on the land going forwards. This uncertain future is going to invariably bring both opportunities, as well as challenges, and almost certainly ever increasing amounts of compliance paperwork and reporting!

We're just at the outset of this journey around carbon and agriculture and there will definitely be more speed bumps on the road ahead, but the destination we need to reach is an important one, and we have the potential to make farming and our food system better if we can navigate it well. I'm trying to balance being both a realist as well as an eternal optimist in setting out where things are up to right now in the carbon space, and share any suggestions on what I'd do if I was a farmer in the Upper North.

With all the noise around carbon and farming, should I just tune out right now until things become clearer?

The focus on carbon isn't going to go away for generations to come, it's important to the people that we do business with, and we'll see this becoming more apparent over the coming seasons:

Your bank cares about carbon The finance sector is already being a major catalyst for change. We sell our grapes to Treasury Wine Estates, and a couple of years ago they switched their debt to being linked to sustainability linked loans. One of the flow on effects of this is that, for us growers at the start of their supply chain we'll now need to be Certified Sustainable under the Sustainable Winegrowing Australia program by next year if we want to remain contracted, which involved auditing by Fresh Care in our instance, which was no trivial task to be compliant with. Carbon isn't yet a core part of our sustainability program in wine, but it's likely to be the next thing that's on the horizon, and this top down approach is coming to an industry near you soon! We will also see banks taking a leading role in financing farms who are taking a leading role to decarbonise their farming operations, with CommBank this month launching an Agri Green Loan product

Your supply chain cares about carbon, and we are all in this together
Brands are making public commitments left right and center to become carbon neutral, and they are going to be increasingly held accountable by financial processes such as the Task Force on Climate-related Financial Disclosures which mandates that companies disclose their climate risks, and adopt science based approaches to reducing it.

The lowest hanging fruit for brands and corporates in the agrifood supply chain is to reduce their Scope 1 emissions (what they control directly themselves, for example making their processing plants more efficient), and their Scope 2 emissions (the energy they use, and this will further drive the switch to renewables). Its brands Scope 3 emissions that are the trickiest ones to tackle as they're the emissions that are directly involved in their product, but that they're not in control of, and farms make up a significant proportion of this Scope 3 in the AgriFood supply chain.

The Scope 3 emissions challenge is going to mean that brands and processors are going to increasingly look for suppliers of lower carbon produce, and those farmers who can put themselves in a position to be able to verify their carbon footprint are going to be positioned well into the future. This is an emerging opportunity for competitive advantage for producers based in regions such as the Mid North.
As an example from the livestock industry, Tyson Foods Ian McConnel stated that "by 2030, every beef producer in Australia will have to know their exact carbon footprint and be able to express it as a number. The world's big beef buyers are going to come knocking for carbon offsets along with the animals they buy and will need numbers attached to kilograms that are accounted for under international rules".

Our ability to export our produce is going to be linked to carbon
As someone in the wine industry, we're currently experiencing the painful reality of losing access to a major market like China. The carbon footprint of produce is going to increasingly become a key metric when it comes to international trade, with the EU taking a leading role with their Carbon Border Adjustment Mechanism that will start to apply to products we export to Europe, and this will be another driver of us needing to be able to demonstrate the carbon footprint of our produce.

As landowners we have sinks as well as sources of carbon

Farmers are in a quite unique position in terms of having soil and trees that can act as sinks of carbon to reduce our footprint, as well as sources of carbon in terms of our emissions. The challenge for us as farmers is how to ensure that we generate and capture the maximum benefit both commercially and environmentally from the opportunity we have before us, and what (if anything) should

we be doing about it right now…

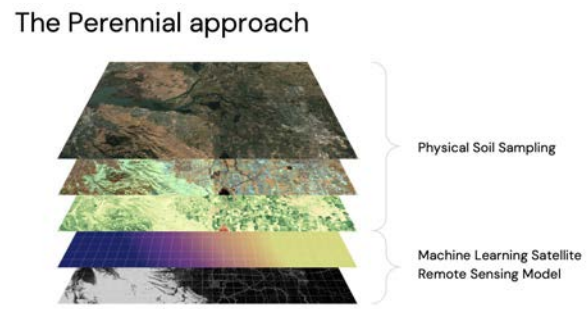
The challenge of soil carbon, and the learnings from the Mid North

At Perennial we're focused on the technical challenge of accurately and cost effectively quantifying soil carbon and its change over time, with the goal of unlocking the potential value that soil holds to sequester value for farmers and the agri-food supply chain. Up until this point it's been physical soil samples that are the only approach to measuring soil carbon that was accepted by markets where carbon is traded such as the Emissions Reduction Fund in Australia.

In terms of quantifying soil carbon with both high levels of accuracy, whilst also ensuring that it's commercially viable for farmers; the challenge is that if it is measured by just the bare minimum of 9 physical samples required to be taken down to 30cm across a whole farm, then there is low confidence that the samples reflect the actual distribution. This results in significant numbers of samples being needed which pushes up the costs significantly, and this has driven the launch of the National Soil Carbon Innovation Challenge to push the costs of accurate measurement down to a $3/Ha target.

With the support of MLA and AgriFutures, we are taking on this challenge by building computer models that quantify soil carbon for every 10m2 of a paddock using a combination of inputs including remotely sensed data from satellites, geospatial data layers that typically have a relationship to soil carbon distribution such as topography, soil type, rainfall, with the model being locally calibrated to each farm using the physical soil sample data.

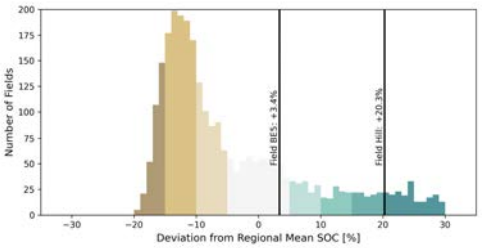
In this way we are essentially filling in the gaps between the physical sampling data that gives us a known starting point on the left, and creating a model assisted output for every 10m2 on the right. The Chief Scientist of Perennial has used similar approaches on the NASA GEDI Mission that he's a lead investigator on where they are quantifying the carbon in above ground trees.

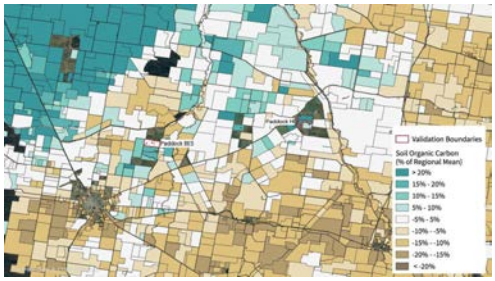


We've been working in partnership with the MLA's Carbon Neutral 2030 program to localise the Perennial model for Australian soil conditions, and as a part of this we carried out physical soil sampling with livestock producers across the Upper North, Mid North and Barossa regions, crossing multiple soil types and average rainfall ranges of above 600mm to well below 300mm.

With the data from the regions we've been able to show producers what their current levels of soil carbon stocks are, and where this sits against the mean average of their district. Going into the future this data is going to help inform producers of what their potential is for future soil carbon sequestration given their specific geography.

By quantifying carbon per paddock across a region, we also want to help farmers and agronomists identify where previous management practices such as switching to time controlled grazing or planting multi-species pastures have resulted in the paddock deviating from the ones around them. Within the Upper and Mid North regions paddocks have typically ranged from soil carbon stocks in the top 30cm of 25 tonnes/Ha (around 0.5% soil carbon) up to over 50 tonnes/Ha (1.3% soil carbon), and this was driven by a combination of average rainfall levels, soil type and topography.





To put this into practical perspective from a carbon sequestration perspective, if producers could build an average of 200kg of soil carbon per Ha per year (1.6 tonnes/Ha by 2030) then this would equate to approximately 6 carbon credits per Ha (each tonne of soil carbon is multiplied by 3.67 to generate a CO2-e number that everything is calculated against). Carbon credits are forecast to be worth up to around $45/tonne by 2030, so it could be an additional revenue stream of $270/Ha. Whilst the numbers might seem low on a per Ha basis, this really adds up in terms of the impact at a national and industry wide scale. For example in the livestock industry if producers across 20m Ha of the 60m Ha of improved grazing pastures were proving out that they're building 200kg of soil carbon per Ha year, this would equate to a 38% reduction in current emissions (22Mt CO2-e of the industries 55.7Mt CO2-e emissions), and would be creating additional value for farmers of around $1bn/year based on a $45/tonne price.

What is looking positive in the carbon space

The market is going towards an Integrated Method that enables farmers to benefit from the carbon that we can prove out that we're building in both our soil and trees. It's the combination of planting shelterbelts and building soil carbon that is likely to enable many farmers to make significant progress towards becoming carbon neutral producers or selling carbon credits.

There's genuine progress being made with the Clean Energy Regulator to optimise Australia's next methodology to enable model assisted approaches like the one we take at Perennial to lower the cost whilst also increasing the accuracy of soil carbon quantification, and the support of the producers in the Upper North that have allowed us to use their farms as calibration sites is massively appreciated.

The Australian Emissions Reduction Fund is seen globally as a gold standard soil carbon methodology and registry. Allied with Australia's natural advantages around renewables and the governments commitments towards emissions reduction targets, a lot of investment and talent is flowing into working on carbon orientated solutions for Australian agriculture.

We're starting to see organisations like GPSA take real leadership in the carbon space through initial trials with FLINTpro tools to enable their producers to have their carbon emissions baselined, and leading brands such as Coopers also launching pilots around sustainability traceability with SA based start-up Trust Provenance and ADM.

What's still missing

Even though there is rapid progress and a lot of excitement and interest in the carbon space, taking a step back there are still a number of key challenges and missing links that need to be fixed

- There isn't currently a recognised way for producers to be accredited that they are working towards being carbon neutral, which might well be a journey of 5-10+ years
- The Emissions Reduction Fund has some hurdles around having to start a new management practice in order to qualify which disadvantages farmers that are already following best practice approaches
- We haven't got to a point where there's a clear framework and process for farmers to work with the processors and brands in their existing supply chains to have a pricing grid that reflects the value of supplying low carbon crops and livestock
- We don't currently have a framework for producers wanting to work towards carbon neutrality where they can offset their sources of emissions with their own sinks of carbon in terms of their soil and trees. If you wanted to prove carbon neutrality today as a farm, after you'd work with a body such as Climate Active to baseline your emissions, prove out that you are reducing your emissions wherever possible, and you would have to purchase carbon credits from 3rd parties to offset wherever is left, you can't currently claim any additional carbon that you prove out that you're sequestering in your own trees and soil
- We don't have any real viable alternative to the Emissions Reduction Fund process where farmers can simply lodge their current baseline soil carbon data in a trusted repository

What are the options and potential strategies for farmers in the Upper North

For any producers looking at entering the carbon market in terms if selling carbon offsets, unless you have the scale to be your own project proponent under the Emissions Reduction Fund process, the current option is to work with a 3rd party project developer, and a good place to research potential project developers to work with is the directory of the Carbon Market Institute. It could potentially be the Integrated Method where carbon sequestration from both soil and trees can be combined from early 2023 that's going to make this approach more viable for producers in the region.

A lot of producers we've met so far are initially looking for a pathway where they can baseline their current soil carbon levels, and lodge it in a trusted and recognised data repository. They are wanting to draw a line in the soil today so they are in a position to benefit in the future from any carbon they can prove out that they've built, whether it be to sell it as an offset to a 3rd party emitter, or to inset the credits into the supply chain they already sell their produce into by using them to lower their own carbon footprint.

The conundrum for many producers is this alternative pathway to the Emissions Reduction Fund doesn't currently exist, and the sooner farmers have their soil carbon baselined and lodged in a repository the better positioned they'll be going into the future. This is a real frustration and pain at the moment, but one that's got to get solved soon, so my advice is to continue to watch the carbon space as there's a lot of developments and dots that will get joining in the coming 12-18 months that will make it a better fit for farmers to be involved in.

Perennial

How target-site Glufosinate Resistance Works

Written by: Peter Newman

Evolution is pretty wild. A random mutation occurs, and if that is beneficial, the mutation becomes dominant over generations and the species evolves. Does it always happen in one individual and then spread, or can the same trait evolve in different places at the same time?

The latter.

In this recent AHRI research, the same glufosinate resistance mechanism appeared in China and Malaysia at the same time.

Glufosinate (Liberty or Basta) is “the other” knockdown herbicide. We don’t use a whole lot of it in Australia at present, but we’re starting to with the release of Liberty Link crops that can tolerate the herbicide. Glufosinate has been used globally for about 30 years, but we currently have low levels of resistance to this herbicide. Global use of glufosinate is increasing in tolerant crops, and as a knockdown herbicide in countries where paraquat has been banned.

AHRI researchers Dr Qin Yu and Dr Heping Han recently teamed up with some visiting Chinese researchers to describe the glufosinate resistance mechanism. They found the same single point, target-site mutation, Ser59Gly in resistant *Eleusine indica* (Crowsfoot grass) populations from Malaysia and China. The plants had relatively low-level resistance, but given that this mutation evolved independently in different countries, it appears that this may represent a common target-site resistance mechanism to glufosinate.

Once again, our researchers put us in the fortunate position of understanding resistance to a herbicide before its widespread use in Australia.

AHRI AUSTRALIAN HERBICIDE RESISTANCE INITIATIVE — AHRI Insight

Farm Safety webinar series

GrainGrowers is running a series of Farm Safety webinars with House Paddock Training and Consulting, to provide useful tools for grain growers to improve their workplace health and safety practices on the farm, particularly around machinery.

These webinars are free and will run from 12pm - 1pm. Register via their website.

TUESDAY 6 SEPTEMBER 2022

Making machinery safer

This webinar will cover:

- Machinery safety stats
- Machinery operation and competence
- Machinery maintenance
- Guarding

TUESDAY 13 SEPTEMBER 2022

Growers who have been impacted

A panel discussion with three growers who have been impacted by WHS, facilitated by Bec Fing

Grain Growers

Q-FEVER

GOYDER'S LINE MEDICAL - JAMESTOWN HAVE A Q-FEVER CLINIC COMING UP.

31st August
and
7th September

TO QUALIFY FOR Q-FEVER YOU MUST BE 15 YEARS OLD OR OVER AND ATTEND BOTH DATES ONE WEEK APART.

PLEASE CALL ONE OF OUR CLINICS TO BOOK AN APPOINTMENT.

GRAIN PRODUCERS SA
The voice of South Australian growers

Media Release

Thursday 14 July 2022

GPSA launches 'Worst Grain Roads' campaign

Grain Producers SA (GPSA) is calling on grain producers and those involved in the supply chain to nominate a road they believe needs priority attention as part of the 'worst grain roads' campaign launched today.

Grain Producers SA Chief Executive Officer Brad Perry said every day the grain industry in South Australia relies on roads to move grain, people, services and goods.

"The South Australian grains industry is a significant economic contributor generating over $3 billion in gross industry revenue and employing 23,000 people directly," said Mr Perry.

"This campaign will help us identify the state's worst grain roads so we can highlight the routes in most need of repair, ensuring future funding is prioritised to the places that need it most to maintain safe and efficient transport for the grain sector.

"The road network in South Australia is managed by a combination of state, federal and local governments and we know there are significant funds allocated to road repairs and upgrades.

"Through the 'Worst Grain Roads' campaign we want to focus on the roads and freight routes that growers and industry identify as needing urgent attention.

"With the cessation of rail freight in many parts of South Australia's grain regions, there is much more pressure on our regional road networks and it's important that GPSA has a definitive priority list of where the industry would like to see investment.

"Based on the entries into the 'Worst Grain Roads' website, we will release a priority list of roads the grain industry in South Australia believes should be prioritised for upgrade or repair.

"If you can safely take a photo of the condition of the nominated road, we are encouraging that photo to also be submitted as part of the campaign".

GPSA will also be travelling across South Australia meeting with grain producers and key industry stakeholders discussing roads and infrastructure as part of the campaign.

You will be able to enter your worst grain road at **www.worstgrainroadssa.com.au** until September 30, 2022.

Grain Producers SA is the peak industry body representing the 4,500 grain farming businesses in South Australia.

For interviews, contact Brad Perry, GPSA CEO, on 0418 619 907

AWI FLYSTRIKE EXTENSTION PROGRAM

Australian Wool Innovation Limited

It's Fly Time!™

Practical, just-in-time information in the lead up to, and during, high-risk flystrike periods.

Prevention, monitoring and treatment all play key roles in integrated flystrike management in the lead up to, and during, high-risk flystrike periods. It's Fly Time!™ provides a succinct introduction for woolgrowers on managing flystrike during high-risk periods; including tips for preventing flystrike, information on prioritising sheep for monitoring and treatment, and options for treating sheep when flystrike does occur.

Resources available now at www.wool.com/itsflytime.

The next webinar is scheduled for Tuesday, 16 August 2022. Look out for more information on this and future live It's Fly Time!™ webinars held in the lead up to, and during, high-risk flystrike periods on the AWI events page.

DemystiFly™

Practical information about managing chemical resistance in blowflies.

AWI has made available a range of resources for woolgrowers and their advisors about blowfly chemical resistance to 'demystify' this complex, yet important, issue.

There are only a small number of chemical groups registered for flystrike control, so it is important to prolong the usefulness of these chemicals for as long as possible. By implementing resistance management strategies, woolgrowers can slow the development of resistance, which will help maintain the effectiveness of the currently registered chemical products.

Available now at www.wool.com/demystifly.

SimpliFly™

A one-day workshop to develop a property-specific strategic flystrike management plan.

SimpliFly™ is a one-day workshop, delivered by AWI-accredited advisors in partnership with the AWI state grower extension networks, to help woolgrowers reduce the incidence and impact of flystrike on their flocks and profits.

During the interactive workshop woolgrowers explore the range of short- and long-term management tools and strategies available in their flystrike management toolbox. Woolgrowers work through practical activities that enable them to combine these strategies and tools for their own property, building a customised annual flystrike management plan and calendar relevant to their environment, sheep type and farm operations.

During the workshop woolgrowers will learn about the range of tools available in their flystrike management toolbox and how to use them in combination. Throughout the day, attendees work through developing a strategic flystrike management plan and annual calendar that incorporates both short- and long-term tools specific to their property.

Available now (www.wool.com/networks) and resources are available at www.wool.com/simplifly.

ClassiFly™

A one-day workshop to increase understanding and skills in breeding for flystrike resistance.

ClassiFly™ is for any woolgrower that is looking to improve their understanding of what is involved in breeding sheep that are resistant to flystrike, regardless of their climate, and operating and husbandry environments.

The one-day workshop is designed to increase woolgrower knowledge and skills in classing, and selection strategies for improved flystrike resistance. Improving a sheep's natural resistance to flystrike through breeding reduces the risk of flystrike in both mulesed and non-mulesed sheep, reducing labour and reliance on chemical use, mulesing and crutching. These activities are generally the most labour intensive and costly tools so reducing reliance on these can improve productivity and profitability, along with improving the lifetime welfare of sheep.

Woolgrowers work through practical activities that enable them to leave with a written breeding objective, specific to their property, that helps further focus their breeding and selection decisions on traits that improve overall animal welfare, profitability and productivity.

Plan (at July 2022) to release to woolgrowers in late 2022.

StrateFly™

A one-day workshop to develop a property-specific whole-of-farm strategy for moving to a non-mulesed enterprise.

Moving to a non-mulesed enterprise is not a decision that should be taken lightly by woolgrowers, in some situations it can involve significant changes to current practices. It requires commitment and flexibility, and for it to be effective woolgrowers need to have a robust, long-term plan in place to manage the transition.

Woolgrowers that attend the interactive, one-day workshop will better understand the tools available to them to choose from if they wish to develop a strategy to go non mulesed. In removing the 'mulesing tool' from the flystrike management toolbox, woolgrowers must rebalance the use and timing of the other tools available to them (such as crutching, shearing and chemical use, classing and selection) to make the transition. Also discussed will be ensuring woolgrowers have 'buy-in' from both people within their business and those that provide services to their business (for example, livestock agents and contractors).

During the workshop woolgrowers will work through practical activities that leave them with a moving to non-mulesed plan, specific to their property, that helps further focus their whole-of-farm decisions to improve overall animal welfare, productivity and profitability.

StrateFly™ workshops will be available in 2023.

AmpliFly™

One-on-one coaching and support for a trained and accredited advisor to assist you over time to implement your whole-of-farm strategy for moving to a non-mulesed enterprise.

Through AmpliFly™, woolgrowers can engage AWI-trained and -accredited advisors under a fee-for-service consultancy arrangement to assist them to implement, monitor and improve their whole-of-farm plan for moving to a non-mulesed enterprise. The AWI accreditation of trained advisors ensures woolgrowers will receive expert, nationally consistent, hands-on coaching and support that is tailored to their specific enterprise by their trusted advisor.

AmpliFly™ builds on woolgrower learnings from SimpliFly™, ClassiFly™ and StrateFly™ although these are not prerequisites to participation. The advisor support package is designed to be easily embedded into the suite of services that advisors offer to their clients, enhancing advisor capacity and broadening the reach of woolgrower funded research and development into reducing the impact of flystrike on Australia's sheep flock.

The practicalities of moving to a non-mulesed enterprise are different for every woolgrower, so it's important for the grower to be able to engage the advice they need to tailor a plan specific to their individual circumstances and needs.

AmpliFly™ will be available in 2023.

TOOLS AND RESOURCES

It's Fly Time!™
Practical, just-in-time information in the lead up to, and during, high-risk flystrike periods

DemystiFly™
Practical information about managing chemical resistance in blowflies

flyboss
Powered by ParaBoss
Information and tools on flystrike management

Breeding and selection
Information and tools to help you breed better sheep

WORKSHOPS AND ADVISOR COACHING AND SUPPORT

SimpliFly™
A one-day workshop to develop a property-specific, strategic flystrike management plan

ClassiFly™
A one-day workshop to increase understanding and skills in breeding for flystrike resistance

StrateFly™
A one-day workshop to develop a property-specific, whole-of-farm strategy for moving to a non-mulesed enterprise

AmpliFly™
One-on-one coaching and support from a trained and accredited advisor to assist you over time to implement your whole-of-farm strategy for moving to a non-mulesed enterprise

Published by Australian Wool Innovation Limited, Level 3, 24 York Street, Sydney, NSW, 2000.

Harvest Fire Danger Index

Agbyte in conjunction with a range of local community groups runs various harvest Fire Danger Index (FDI) alerting systems. These systems utilise data generated by Agbyte weather stations that are either individually owned by primary producers or by community groups.

FDI is crucial for adhering to the harvest code of practice that advises paddock harvesting operations to cease when the FDI reaches 35. The FDI is calculated using the McArthur Index version 4.

The harvest FDI alerting system typically utilises the FDI data generated at each site across the region and displays this on a web page where a trusted community member/s then make a decision on sending out an informative SMS to growers and stakeholders. By displaying the FDI from multiple sites, the users can get a feel for how FDI varies across a region (often driven by wind speed) and thus make sound decisions about alerting those affected by a rising FDI value.

The harvest FDI alerting system used on the Northern Yorke Peninsula, in place since 2015, accesses FDI data from 25 weather station sites managed by Agbyte. On high risk days, a SMS is sent out (via a broadcast SMS provider) that states "*The average FDI is near to or has exceeded 35. Please review your paddock conditions*". This aims to inform users of general conditions, yet place the onus on those harvesting to check conditions in the paddock where they are working in order to get local information relevant to them.

Agbyte weather stations have high quality sensors that are mounted at standard heights which include:

- Air temperature and relative humidity at 1.2m from ground level
- Wind speed & direction sensors at 2.0m from ground level

Agbyte weather stations are located away tree lines or other buildings that may affect wind and they are typically installed on more prone areas rather than in hollows or swales that may restrict wind.

Once the weather station has recorded the readings from the sensors, they are set to upload the data every 15 minutes to a gateway server. Calculation are performed at the server level to generate a FDI figure utilising 10^(0.009254 - (0.004096*((100-w)^1.536)) + (0.01201*x) + (0.2789*(SQRT(z)) - 0.09577*(SQRT(y))))

X = air temperature
Y = relative humidity
Z = 10m wind speed
W = curing factor = 1 (indicating fields are at 100% cured for harvest)

To convert the 2m wind speed reading to its equivalent at 10m:

Wind speed 10m = x*((5)^(0.143))
X = Wind speed 2m

Wind speed is converted from 2m to 10m in accordance with CSIRO McArthur Index and should be taken into account when doing manual reads with a handheld Kestrel weather meter. Also when using such meters, a wind speed reading should be taken for at least 3 minutes in order to gauge an average, preferably 10 minutes.

It can be useful to cross check FDI readings by downloading the *Calc FDI* app by Fairport on your smart phone

Please contact Leet Wilksch for more information. leet@agbyte.com.au Ph 0408 428 714

Ag Excellence Forum and Awards

Leet Wilksch, Ag Ex Alliance Chair, Michael Zwar, UNFS Vice Chair, Ruth Sommerville, UNFS Executive Officer, Mehdi Doroudi, Chief Executive Officer for Primary Industries and Regions South Australia (PIRSA)

AgEx
AWARD WINNER
2022

Upcoming Events Calendar

September		
Date	**Event**	**Contact**
2nd	UNFS Nelshaby hub & Nelshaby Ag Bureau Western Crop Walk	Nathan Crouch: 0407634528
8th	UNFS Annual Members Expo & AGM	Kristina Mudge: admin@unfs.com.au
14th	UNFS Strategic Board Meeting 7pm	Kristina Mudge: admin@unfs.com.au
14th-15th	Farmsafe National Conference	info@farmsafe.org.au
15th	Agxtra Spring Field Day & UNFS Eastern Sticky Beak Day	Steph Lunn: 0430113583 Morgan McCallum: 0459718181
20th	UNFS Northern Sticky Beak Day	Morgan McCallum: 0459718181
20th	UNFS Ladies on the Land: Transitioning People through the farm business	Jessica Koch: 0407986557
20th	Hart Field Day	www.hartfeildsite.org.au
28th	UNFS Operations Committee Meeting - Project and Issue Identification for 2023	Kristina Mudge: admin@unfs.com.au
29th	Mid North High Rainfall Spring Walk—Giles Corner	committee@mnhrz.com.au
30th	Mid North High Rainfall Spring Walk—Farrell Flat	committee@mnhrz.com.au
October		
18th	Hart Twilight Walk	www.hartfeildsite.org.au
26-27th	Building Australian Extension Skills Program—Introduction to extension design & Practise	Jeanette Long: jeanette@agconsulting.com.au
28th	Building Australian Extension Skills Program - Facilitating Learning and Change	Jeanette Long: jeanette@agconsulting.com.au

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