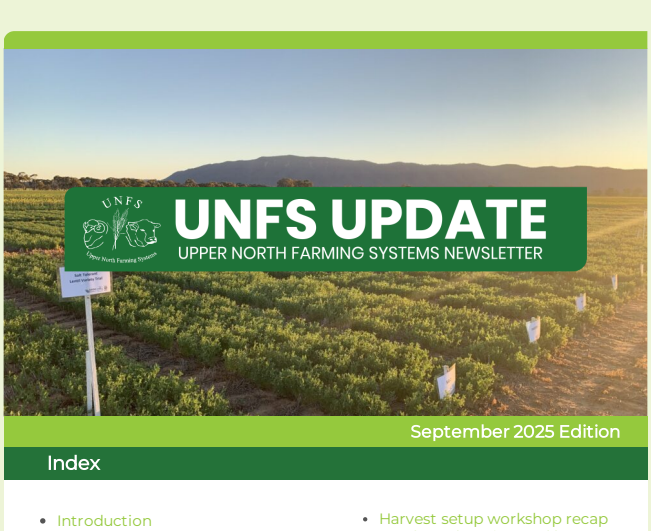

UNFS UPDATE

UPPER NORTH FARMING SYSTEMS NEWSLETTER

September 2025 Edition

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Welcome to the September edition of the UNFS newsletter

Following on from the harsh 2024 cropping season, things are starting to look more positive in the Upper North. Coming off a decile 1 season and driest on record for some across much of the UN, this left us with zero soil moisture. Crops have been **slow**, with cold soil conditions deferring crop development, these conditions could shorten the effective growing window, raising the potential of **heat or frost during flowering and grain fill,** which may further reduce yields. Currently the Upper North is sitting at a decile 5 season, with an average of 210mm growing season rainfall (Booleroo). The evolving outlook suggests a potentially **wet spring ahead**, with the Bureau of Meteorology now forecasting a **65–70% chance of above-average rainfall through spring (September–November)**. Yield potential for the Upper North is currently **sitting below the long-term median**. However, with crops entering reproductive stages, if forecasted rain arrives, yields may recover towards average levels.

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GrainGrowers

Local grower inspired at national Grain Growers Innovation Generation conference

Upper North Farming Systems (UNFS) was offered a funded place by GrainGrowers to attend **Innovation Generation 2025**, held in Fremantle from 22–24 July. The annual event brings together young professionals from across Australia's grains industry for two days of learning, networking and inspiration.
Representing UNFS was **Tom Porter**, who returned home energised about the future of agriculture.
"It was a great trip, put forward by GPSA, allowing an individual from a grower group in a drought-affected area to attend," Tom said. "We had a great group of young growers from the northern Mallee-Riverland through to the Mid North and Eyre Peninsula—all like-minded and passionate about agriculture."
Attendees heard from a line-up of high-profile speakers, including Olympic cyclist **Anna Meares**, Four Pillars Gin co-founder **Stuart Gregor**, and grower and former chairman **Rod Birch**. Their motivational stories left strong impressions on participants.
Among Tom's key take-home messages were:

- Teams work like a wheel—everyone must use their strengths to achieve a shared goal.

Data doesn't bring emotion: focus on making the right decision and strategy.
Avoid distractions: pull the right lever and concentrate on the top priorities.
Embrace innovation: not too early to risk failure, but not so late you miss out.
Tom said the event offered an invaluable chance to connect with other young growers and industry leaders.
"If you are interested in agri-politics, good industry presence, being surrounded by likeminded people, networking and meeting others, then this event would be for you," he encouraged.

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Koch's gain insights from WA Grain Automate Expo

Upper North Farming Systems (UNFS) Operations Committee member, Joe Koch, was given the opportunity to attend 'Converge Esperance 2025', held on 31st July and 1st August, thanks to a funding contribution provided by SPAA.
The two-day business and industry forum, hosted by the Esperance Chamber of Commerce and Industry (ECCI) and the Goldfields-Esperance Development Commission (GEDC), profiled the region's major industry sectors, small business innovation and future economic opportunities. The program included a mix of conference sessions, industry tours, workshops, networking events and sundowners.
A highlight of the program was the inclusion of the GRDC/SPAA Grain Automate initiative, which explores automation and digital solutions for the grains industry. Joe attended with his wife Jess, and together they returned with fresh ideas and insights to share with local growers. Thank you to the Koch's for using their experiences in Western Australia to help shape the UNFS Grain Automate Expo held in Melrose in August and contributing to planning and delivering the local event, ensuring it was a success.

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SAVE THE DATE

UNFS BOOLEROO CROP WALK

Facilitation from agronomists **Jeff Braun and Michael Brougham**

October 7, 2025
1 - 5:30 pm

Booleroo Sporting Complex

BBQ dinner provided

REGISER: https://boolerocropwalk.eventbrite.com.au

UNFS JAMESTOWN CROP WALK

Facilitation from agronomist **Craig Davis**

October 9, 2025
1 - 5:30 pm

Tom Porter's Farm
4857 RM Williams Way, Washpool

BBQ dinner provided

REGISTER: https://jamestowncropwalk.eventbrite.com.au

Producer Demonstration Site · UNFS · mla MEAT & LIVESTOCK AUSTRALIA

Boost your productivity with smarter pasture and grazing management

Improved pasture management systems PDS - Workshop

Tuesday 23 September 2025 | Time 9.00am – 1.00pm
Don Bottrall's Shearing Shed and Alison Henderson's farm - 448 Bottrall Drive, Appila, SA, 5480
Morning tea & lunch provided

Overview of the PDS

In collaboration with Upper North Farming Systems (UNFS) members, this producer demonstration site (PDS) project aims to improve the pasture management systems implemented in the upper north of SA through:

1. demonstrating better pasture options that improve the mixed farming enterprise
2. providing a better understanding of food on offer.

What's on the agenda?

This event is all about improving pasture management in mixed farming systems. Come along to see what's working in your region, and how you can apply it to your own enterprise!

Pasture growth basics

- Understand how plants grow, the importance of spelling, seed set in annuals, tiller management in perennials, and where soil fertility fits in.

Feed budgeting essentials

- What goes into a strategic feed budget?
- Estimating sheep nutritional demand over time
- How different pasture species impact feed availability (annuals, perennials, legumes, crops, stubbles etc.)
- How to adjust stocking rate and operations to match feed supply

Plus! Producer case studies presented by:

- Alison Henderson – Mixed vs single species pastures at Caltowie
- Andrew Cootes – Cost-benefit of intensive rotational grazing in non-arable hills at Washpool

This event is funded by Meat & Livestock Australia under the Producer Demonstration Site program.

MLA's PDS program supports producers to adopt, validate and demonstrate the business value of integrating new management practices/skills into their local farming systems.

For more information and to register contact:
Rachel Trengove
0438 452 003
rachel@unfs.com.au

RSVP by **Monday 22 September 2025**

LANDSCAPE SOUTH AUSTRALIA NORTHERN AND YORKE
This workshop received funding from the Australian Government Saving Native Species Program

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UNFS 2025 AGM

24 September, Laura

The AGM is your chance to connect with UNFS members, join our committee, and be part of shaping the future of farming in the Upper North.

Informal Crop Walk (optional)

4:30 - 5:15 pm
353 Laura-Caltowie Road

- Park in house yard (1)
- Walk to trial (2)

Looking at abiotic seedling stress in dry sowing conditions trial.

Trial commentary from soil scientist **Michael Eyres**.

AGM

- Dinner from **5:45 pm**, *sharp*
- AGM from **6:15 pm**
- **Laura Bowling Club**

Operations meeting, including project prioritisation, to follow for existing and new committee members.

In person (preferred), or Zoom for those unable to attend in person.

Please email **admin@unfs.com.au** to receive a zoom link.

Dinner will be provided to those able to attend **in person**.

Inviting friends and neighbours who may be interested in **becoming a member** and **joining the committee** is encouraged.

RSVP is ESSENTIAL for catering purposes: Deb Marner, 0409 100 134

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TRIAL UPDATE
Pulse Suitability across landscapes in-season update (Melrose and Spalding)

By UNFS Program Manager Jade Rose, 20th August 2025

Funded by Drought Hub

We're underway with two lentil focus demos at Melrose and Spalding as part of the Pulse suitability across landscapes project. With Sarah Day, SARDI Clare, we've set up focus points across landscape change. Before sowing, soils were sampled at three depths for comprehensive testing to baseline fertility and any constraints. Through the season we're checking crop establishment, using NDVI to track canopy growth and stress over time, and taking mid-flower biomass cuts (including a FeedTest sample) to understand dry matter production. At harvest, harvest-index cuts are processed for HI, grain yield and grain quality to see how well plants partition biomass to grain. After harvest we repeat the soil cores to measure nutrient drawdown and changes in soil condition, and assess stubble with photos to capture residue cover. Together, these measurements link soils and microclimate to crop performance across the paddock, so growers can better match lentil placement and management to each landscape position
Weather snapshot (2025 growing season to date)
Given the late break followed by a wet, cold July and a lighter August, lentils on heavier clay/loam positions around Melrose and Spalding likely emerged slowly and unevenly early, then pushed rapid canopy growth once moisture arrived.
Relative to the long-term averages:
Spalding: May ~52 mm, Jun ~68 mm, Jul ~64 mm, Aug ~67 mm;
Melrose: May ~35 mm, Jun ~37 mm, Jul ~40 mm, Aug ~43 mm
This year's pattern (dry May, very wet July, softer August) would have lifted waterlogging risk in lower/heavier patches in July (suppressing nodulation and root activity and raising foliar disease pressure) but has now left useful subsoil moisture to carry flowering and pod-set.
Overall, the heavier ground is well positioned for yield if disease is managed and traffic/compaction in wet areas is minimised, with some lodging risk where canopies are dense.

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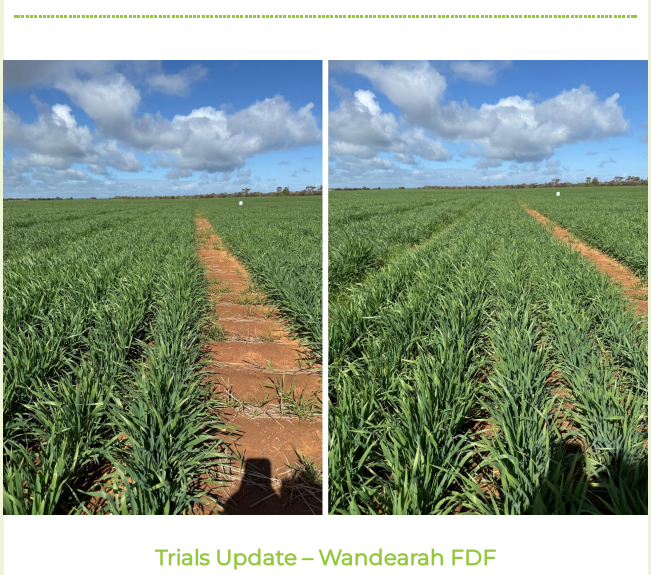

Trials Update – Wandearah FDF
By Stefan Schmitt

Demonstrations Established
Three demonstration trials have been set up at Wandearah:

1. **Dry sowing barley into saline soil**
   Barley was sown at approximately weekly intervals from early April until the seasonal break in June. The aim is to assess impacts on establishment and vigour.
2. **Seeding systems: past vs present**
   A comparison of older versus modern seeding systems was established. Barley seed was surface-spread and incorporated with a Kelly Chain (unit kindly provided by Kelly Engineering) versus sown with a knife-point press wheel seeding system.
3. **Pre-emergent herbicide safety in barley**
   A trial comparing **Overwatch** and **Sakura** under two opener types: Atom Jet versus Root Boot.

Observations to Date

1. **Barley Time of Sowing (TOS) Demonstration**
   Crop establishment was reduced when sown dry due to cloddy soil conditions at the site. However, plots sown after a 5 mm rainfall event (just prior to the season break) showed significantly better establishment, as the small amount of moisture improved seed-soil contact.

   Importantly, barley seed sitting in dry soil for more than two months did **not** suffer a loss of vigour or viability. This outcome was likely influenced by the seedbed being completely dry throughout that period. A different result may have occurred if the seed had been sitting in marginal moisture.
2. **Seeding Systems Evaluation**
   This demonstration compares the **Kelly Chain** (surface sowing) with the **plot seeder** (knife-point/press wheel system).
   - Where pre-emergent herbicides were applied, surface-sown barley (Kelly Chain) suffered **significant damage**. This was expected, as herbicide safety typically relies on positional selectivity (i.e. separating treated soil from the seed at emergence), which is not possible with a chain.
   - Another driver for this demonstration was local farmer concerns about **surface crusting** on heavier clay soils with low organic matter after heavy post-seeding rainfall. The idea was to test whether surface sowing and incorporation could reduce this risk, since no press wheel compaction occurs.
   - In this season, the break was **gentle and extended over several days (June long weekend)**. Under these conditions, no advantage of surface sowing was observed.
3. **Pre-Emergent Herbicide Safety in Barley (by Seeding Point)**
   Some **minor early crop effects** were noted from both herbicides, but symptoms were no longer visible by **GS30**. Given the soft break to the season, major issues were not expected.

This demonstration will be harvested with a small-plot harvester, as visual assessments alone are not sensitive enough to reliably detect yield differences of less than 20%.

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Native Vegetation Grants Now Open

Two grant opportunities are currently available for landholders with native vegetation on their properties.
Nature Restoration Grants – Round 3

- Support for large, long-term projects (5–10 years) that improve native vegetation condition and protection through a new Heritage Agreement.
- Available funding
  - Northern & Yorke – $3.7 million
  - Hills & Fleurieu – $2.8 million
  - Eyre Peninsula – $1.5 million
  - SA Arid Lands – $1.1 million
- Applications close: **7pm, Saturday 8 November 2025**

Heritage Agreement Incentive Grants

- Support for shorter-term projects (1–5 years).
- Open to landholders **across South Australia**.
- Applications close: **30 June 2026** (early applications encouraged).

Information Sessions.

- **Online:** Monday 25 August 2025, 11am or 5pm
  - Book by emailing NVC.haprogram@sa.gov.au or calling (08) 8303 9777 at least 1 hour before the session.
- **In person:** Drop-in sessions across the Northern & Yorke region, 3–17 September 2025 (details on the Department's website).

Find Out More

- Nature Restoration Grant guide and information
- Heritage Agreement Incentive Grant guide and information

Questions?
Native Vegetation Branch – nvc.haprogram@sa.gov.au | (08) 8303 9777

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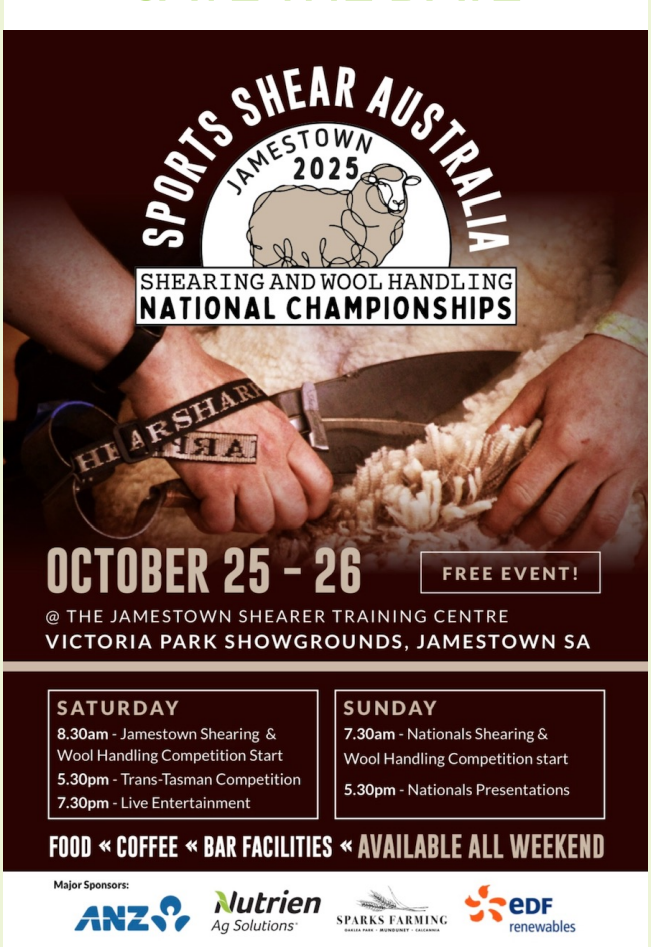
SPORTS SHEAR AUSTRALIA
JAMESTOWN 2025
SHEARING AND WOOL HANDLING NATIONAL CHAMPIONSHIPS
OCTOBER 25 - 26
FREE EVENT!
@ THE JAMESTOWN SHEARER TRAINING CENTRE
VICTORIA PARK SHOWGROUNDS, JAMESTOWN SA
SATURDAY
8.30am - Jamestown Shearing & Wool Handling Competition Start
5.30pm - Trans-Tasman Competition
7.30pm - Live Entertainment
SUNDAY
7.30am - Nationals Shearing & Wool Handling Competition start
5.30pm - Nationals Presentations
FOOD « COFFEE « BAR FACILITIES « AVAILABLE ALL WEEKEND
Major Sponsors:
ANZ
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SPARKS FARMING
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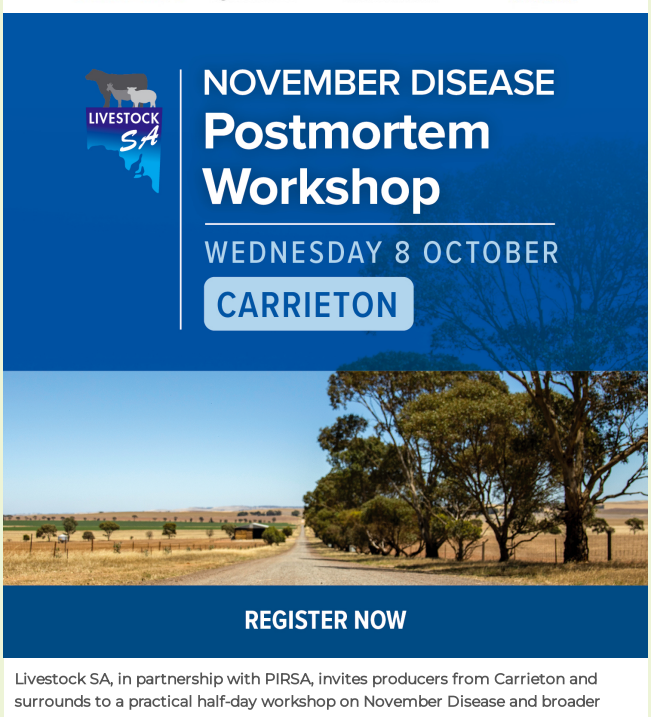

Livestock SA, in partnership with PIRSA, invites producers from Carrieton and surrounds to a practical half-day workshop on November Disease and broader livestock health.
What's included

- Update on November Disease – current knowledge, areas still being explored, and potential causes
- Hands-on sheep post-mortem practical – observe and discuss symptoms linked to ND and other conditions
- Insights into other endemic diseases and seasonal variation
- Plant ID techniques – learn which species to watch for
  This is a great opportunity to hear directly from experts, ask questions, and connect with other producers. A networking lunch will follow the sessions.

Event details

- **Date:** Wednesday, 8 October
- **Time:** 9am – 1pm (lunch included)
- **Cost:** Free
- **Location:** Carrieton Rodeo Club, Wilmington Rd, Carrieton

Click here to register

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Farm Angels – Support for Farmers in Need

We recently met with **Monique Mahony from Farm Angels** to discuss opportunities to support primary producers across South Australia.
About Farm Angels

- Established in 2014 as *Drought Angels* in Queensland, now operating nationwide.
- Provides financial assistance, food hampers, care packs, and mental wellbeing support to farmers doing it tough.
- Mission: *to ensure that farmers never feel alone—offering relief, resources, and hope during times of hardship.*

Support in South Australia

- Currently assisting **180 farmers across SA**.
- **68% of all current applications** to Farm Angels are from our state.

Find Out More
Website: www.farmangels.org.au
Contact: **Monique Mahony, Community Engagement Lead**
Phone: 07 4662 7371 Ext 116
We encourage you to share this information with growers and organisations in your regions who may benefit from, or wish to support, the work of Farm Angels.

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New Water Evaluation Platform – Free for Farmers

At a recent WA Drought Hub Water Smart Dams Project presentation, a new **Water Evaluation platform** was showcased. This free tool has been developed to help farmers better plan and manage their water supplies.
What it does

- Models dam water performance and costs
- Assesses options for different dams, roaded catchments, and evaporation treatments
- Includes a catchment area measurement tool and water availability calculator to estimate when supplies may run out
- Uses **BOM data** for your farm's location
- Lets you adjust variables such as stock type and numbers, soil type, and more

Why it's useful
The platform is easy to use, practical, and designed to support farm-level water planning.
Share it with growers
Grower Groups are encouraged to explore the tool and share it with farmers in their regions.
Learn more: https://www.agriculture.gov.au/about/news/boosting-water-security-wa-dams

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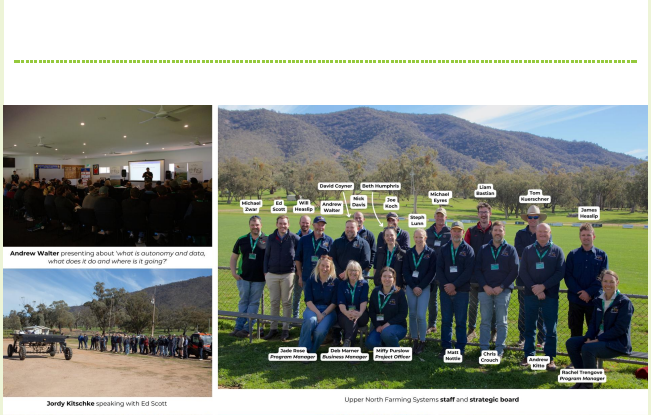

UNFS's Annual Expo

Interest in AgTech was on full display at our UNFS's annual Expo. This year we collaborated with the Society of Precision Ag Australia (SPAA) and the Grain Research and Development Corporation (GRDC) as part of their Grain Automate roadshow.
However, this Expo had UNFS flair and style with local farmers Jess Koch and Joe Koch speaking about their experiences attending the same event in Experience, WA. Melrose farmer Andrew Walter (Wal) also spoke, detailing autonomy, AI, and data, and the questions around what it is, what it does and where it's headed in the future.
We considered ourselves especially lucky to have our facilitator as Edward Scott, who is also on UNFS's Operations committee. Ed is fantastic at creating energy in the room, asking questions, prompting for more information and keeping the conversation casual while simultaneously thought-provoking.
Outdoor demonstrations involved Michael Zwar (AgTech Services) exhibiting his drone used in drone-based weed detection and mapping, Andrew Sargent discussing the SwarmBot by SwarmFarm, and Upper North local Jordy Kitschke (Flux Robotics) presenting his rover robot that autonomously traverses paddocks and removes weeds mechanically.
Lunch was kindly catered for by National Australia Bank (NAB), and involved lots of friendly discussions about the morning, gratefully, in the warmth of the sunshine.
After lunch Richard Copper (NAB) talked through the financial measures of AgTech and grain trade generally in relation to the current foreign affairs and political climate.
Local Bute grain grower James Venning then presented about his own data-informed experiences with AgTech, and the very first steps he took to get started. James, a numbers guy, also spoke about how the use of tech has assisted in improving economics on his own farm.
A panel session between James, Jordy, Andrew and Michael discussing all topics AgTech, big and small ended the official event.
Did the attendees of the day have a good time? It appeared like they did, as many stayed past the official event close to continue chatting about the day and what they were going to do differently on their own farms.

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Harvest gains from UNFS Header Setup Workshop

Upper North Farming Systems (UNFS) hosted a **Header Set Up Workshop** on 26th August at Greg Durrant's farm near Georgetown, with Brett Asphar, Independent Machinery Specialist, leading the day and providing insights into optimising their harvest operations.
The workshop featured a range of machines, with New Holland, John Deere and Case IH headers and two MacDon fronts on-site. A big thank you to the Durrant family for hosting, Robert Price and Hamish Klemm for providing their headers, and Chris Bazley from Primary Sales for supporting the day.
Brett emphasised the importance of understanding your machine and measuring adjustments, not guessing. As he explained:

- *"You've got to know your machine."*
- *"The cheapest accessory for your header is a loss pan."*
- *"Every header is unique – even if you run three identical headers, they will run differently."*
- *"The target is to achieve a set up that is forgiving."*

Brett showed growers how to measure and adjust settings to significantly cut losses, ensuring more grain makes it to storage or market. The workshop, funded by the SA Drought Hub and the Northern & Yorke Landscape Board, provided practical advice for reducing harvest losses, improving weed seed control, and enhancing harvest efficiency.
Brett's key takeaway's for header setup:

1. **Loss testing** – Always use loss pans or drop trays. Test after every change.
2. **Concave settings** – Ensure your concave is square. Start looser than your factory settings, only reduce clearance when necessary.
3. **Spike rasp bars** – (If applicable) Consider upgrading from ~8 to 28–34 bars for better threshing and reduced rotor loss
4. **Machine-specific checks**
   - Fan speed: just high enough to lift chaff, not grain.
   - Rotor speed: higher for green/heavy crops, lower for dry/light grain, slower than book recommendations.
   - Sieves: Wider than book recommendations, small adjustments matter – too wide = loss, too tight = overload.
5. **Seasonal adjustments** – Adapt to conditions: reduce fan speed in dry crops, increase rotor speed and rasp bars in green/strawy crops, and always re-set and re-test when changing varieties.

Brett's golden rule: **"Adjust one setting at a time, measure, and re-check."**
The goal is simple: improve header performance, keep grain in the box, maintain quality, and capture weed seeds—ultimately leading to better returns per hectare.

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Smarter Yards, Smarter Dogs: UNFS Workshop Delivers Practical Insights for Sheep Producers

Sheep producers from across the district gathered at **Eldena, north of Jamestown**, on Wednesday 3rd September for the **UNFS Clipex Stock Yard Design and Low Stress Stock Handling Workshop**, hosted by Tim and Lisa Hall.
The day was facilitated by **Tom Austin**, Solutions Specialist at Clipex and Kelpie breeder from Elfinvale Stud Kelpies, who combined his expertise in yard design with a hands-on demonstration of working dog training.
Tom opened the workshop by posing an important question: *"Is it an investment or a cost?"* when it comes to upgrading sheep yards. While acknowledging the upfront expense, he stressed that well-designed facilities should be seen as a **long-term investment** that delivers efficiency, reduced labour and improved animal welfare.
Tim Hall, reflecting on his own experience building a new shearing shed and yards, reinforced this message: *"Planning is the long bit. Once you pull the trigger, it's quick to execute. The planning is essential to get right, to set up for success."*
Tom highlighted that good yard design is about working with sheep behaviour—using flight zones and pressure points so stock feel they have an escape route. Curves, well-placed gates, and efficient race design all improve sheep flow, while modifications to existing yards can make a big difference without major expense.
The workshop also explored the synergy between **yards and working dogs**. Tom encouraged producers to view their dogs as farm assets, not tools, stressing the need for bonding, consistent training, and small amounts of daily attention.
He outlined his philosophy: a great dog is the product of **genetics, environment, and opportunity**, with the ideal balance being around 60% "eye" and 40% "bark." Foundation training—building trust, control, and basic commands—sets the stage for advanced skills like casting, driving and pen work.
Participants were treated to a live demonstration with a young, untrained pup, where Tom showcased how to create an environment for success. Using a small group of quiet sheep in a rectangular yard, he explained the principle of *"pressure on, pressure off"* and demonstrated simple techniques, such as using a garden rake to apply pressure when needed. The key, he explained, was ensuring the pup learned to circle stock from behind rather than cutting between handler and sheep.
The overall message was clear: **well-designed yards combined with a well-trained dog can transform farm efficiency**. Tom emphasised that yards capable of being worked effectively by just one person and one dog are achievable, reducing stress, labour and animal injury.
The workshop was delivered by Upper North Farming Systems in conjunction with the **Productivity and Predator Control Network**, funded by PIRSA, MLA and Livestock SA, with support from Clipex. A big thank you goes to **Tom Austin for travelling from Victoria**, and to **Tim and Lisa Hall and Hayden Hillman** for hosting the day.

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Drought and climate resilient sheep farms and landscapes tailor-made for low rainfall farming regions

The Project
Adelaide University in conjunction with Murdoch University, Western Australia, have received funding for an exciting 5 year research project. The project aims to develop a stable, productive and resilient farming system that will survive in times of drought and in low rainfall areas. This will be achieved through drought tolerant plant species that will increase feed supply and improve ecosystem services such as soil health, water retention and biodiversity. The project also aims to identify drought tolerant sheep trough evaluation of genetics in traits such as feed efficiency, higher energy reserves, and greater heat tolerance.
How It Will Be Achieved
The project is run by Adelaide University and Murdoch University, with collaboration with Grower Group Alliance, Livestock SA, nine farming systems groups, Drought Hub, neXgen Agri, Pinion Advisory, and Red Centre Enterprises, a First Nations owned enterprise.
Two investigation sites at Roseworthy campus (AU) and at Murdoch University will provide controlled, replicated environments to, 1) test and identify adaptive sheep traits associated that improve heat and drought tolerance of sheep and increase their capacity to efficiently utilise a diverse feed base; and 2) compare drought resilient fodder systems incorporating legumes and shrubs with continuous cropping or current annual pastures / crops as controls.
Alongside this 12 Regional Validation Sites across SA (3), WA (4), Vic (1), and CW-NSW (4) will adapt core trials to local conditions with farmer input, and allow for Adoption Sites in the same regions to support farmers to trial and adopt selected treatments on-farm.
Alison Henderson's property at Caltowie North has been chosen as the Regional Validation Site for Upper North Farming Systems (UNFS). Over the five years, UNFS will follow the progress of this site, sharing regular updates and providing opportunities for members to visit and learn directly from the findings – both locally and across other low rainfall regions.

This project received funding from the Australian Government's Future Drought Fund.

Adelaide University researcher, Megan Tscharke, helping plant 1800 new native species at Roseworthy Campus.

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UNFS / MLA Producer Demonstration Site – Improving Pasture Management Systems 2025 Update

The Upper North Farming Systems (UNFS) MLA Producer Demonstration Site (PDS) on Improving Pasture Management Systems is entering its fourth and final year. Alison Henderson has once again provided a trial site at her property in Caltowie North to compare sheep weight gains on single vs. mixed species pastures, while also trialling the use of satellite imagery to estimate pasture biomass and grazing potential.
Originally planned as a three-year project, the trial was extended after last year's pasture failed to germinate as a result of drought conditions in our region. This year, Alison has dedicated a 25-hectare paddock, split into two equal areas with electric fencing and a water trough.

- Single species treatment: barley sown at 75 kg/ha
- Mixed species treatment: subzero (3 kg/ha), barley (70 kg/ha) and morawa vetch (35 kg/ha)

Her sheep flock will be split evenly to graze both pastures, with weight gain measured across both mobs before and after the treatments are grazed.
To complement livestock data, satellite imagery will be captured at three points through the season:

1. Just prior to grazing
2. Immediately post-grazing
3. One month post-grazing (to assess recovery)

This imagery will estimate Total Standing Dry Matter (TSDM, kg DM/ha), which is a consistent measure of feed available. Pasture cuts will be taken early next week to ground-truth the imagery, using the CiboLabs Survey 123 App to sample 10 points diagonally across the paddock. Feed test samples will also be collected to compare the nutritional quality of the single and mixed pastures.
Upcoming Workshop
To share the findings and explore pasture management strategies for the Upper North, UNFS will host a workshop on **Tuesday, 23rd September at Alison's property.** We are excited to welcome **Cam Nicolson** as guest speaker, bringing his extensive experience and insights to our region.
This PDS project has been funded by Meat & Livestock Australia

Photo: Mixed species pasture in August 2024 under drought conditions

Photo: Mixed species pasture August 2025

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Annual medics with improved drought resilience for low rainfall areas

David Peck, Lee Bartlett

Overview
Annual medics are commonly grown as ley pastures. They provide high quality and high protein feed to livestock and fix nitrogen, which lifts the yield of subsequent grain crops. Recent modelling has indicated that lifting annual medics status from okay to good, increases the profit of mixed farms by 20%, with much of the benefits accruing to the grain crops. Climate change predictions for low rainfall mixed farming areas of South Australia are for warming conditions, and maybe a drying climate with more frequent droughts. This project is searching for annual medic genotypes that are better able to deal with droughts and a changing climate. The research question is do annual medic accessions collected from climates similar to low rainfall areas of South Australia in 2030-2050 outperform current cultivars.
What has been done
The SARDI climate applications team reviewed climate change models to determine future climate (2030-2050) of low rainfall mixed farming areas of South Australia. We then used the genebank search tool Genesys PGR to search for accessions held by the Australian Pastures Genebank (APG) that were collected from parts of the world with a climate like the 2030-50 climate is predicated to be. The APG database was then used to select accessions with high biomass during seed increase at Adelaide (de-facto wet year) and short spines. Current cultivars were selected as controls and our hypothesis is that some accessions will outperform current cultivars. This approach has been used interstate to develop new pasture cultivars with improved drought tolerance. Single 1.5 m rows of one hundred seeds were sown in 2022 at Black Rock and at Palmer, with 2.5 m gaps between rows to allow the better accessions to spread over the years. In 2023 and 2024 the pastures were sprayed out in early spring, to stop seed set to mimic two years of grain cropping. In 2025, biomass will be scored throughout the growing season and short-list the best accessions. With the late break we have a mid-August biomass assessment completed.
What has happened to date in 2025
The opening rains in 2025 occurred in July at Black Rock and late May at Palmer. This means that less biomass was present in mid-August at Black Rock than at Palmer (Fig. 1). Figure 2 presents box-whiskers plot of cultivars (c) and accessions (a) of the different cohorts at Black Rock. Overall, barrel medics and SARDI Rose clover cultivars performed well at Black Rock (barrel medics cultivars are controls in the minor cohort). Individual accessions within most cohorts are showing potential to perform well.

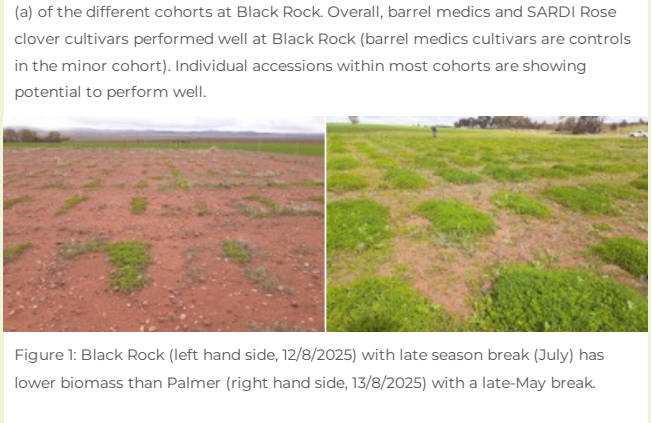

Figure 1: Black Rock (left hand side, 12/8/2025) with late season break (July) has lower biomass than Palmer (right hand side, 13/8/2025) with a late-May break.

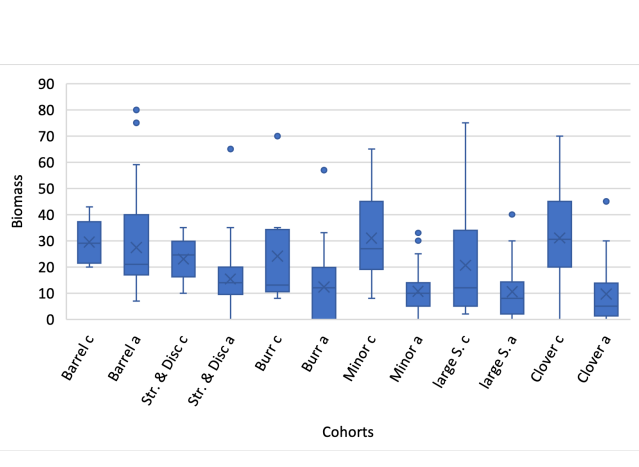

Figure 2: Black Rock box and whisker plot showing from bottom to top, low biomass, 1st quartile, median, mean (x), 3rd quartile, maximum, and outliers (dots). "c" is cultivars and "a" is accessions.

What does it mean
In ley pasture systems, peak biomass is a key measure, as it predicts the amount of nitrogen fixed to benefit subsequent grain yields. This means spring biomass will be a key set of data to short-list accessions. Hardseededness and its softening are key attributes to be considered when developing new cultivars. At the end of the year, a sample of pods will be collected from the short-listed lines and from this, we will determine how much original seed is still present and how much is set in 2025. Pods set in 2025, will go into detailed seed softening studies which allows us to predict long term persistence. The preferred lines have high biomass production and high soil seed reserves. 2025 data, soil seed reserves and softening studies along with performance in 2026 and 2027 will allow us to make final choices on the best performing accessions.
Acknowledgement
This project received funding from the Australian Government's Future Drought Fund. We thank Tom Kuerschner for hosting the trail and the UNFS for assisting us in extension of the project.
If you are interested in visiting the site at Black Rock and hearing from the researchers, please get in touch with Rachel Trengove and we can organise a visit in October.

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Formed in 2001, the Upper North Farming Systems (UNFS) Group conducts research trials and provides extension and networking opportunities for farmers, agronomists, researchers and primary industry.
The UNFS Group covers a diverse geographical area in the Upper North Region of South Australia. The region is bordered to the north and east by the pastoral zones and extends south to the higher rainfall zones and encompasses the towns of Booleroo Centre, Crystal Brook, Hallet, Jamestown, Laura, Peterborough, Nelshaby, Orroroo, Quorn and Wilmington.
The group aims to undertake regular events for its members and the broader agricultural community in the region including workshops, crop walks and Hub events. The feature event on the calendar is the annual member's expo. In 2025 this will be a Grain Automate Expo held at Melrose Showgrounds and delivered by SPAA and UNFS.

UNFS Upper North Farming Systems

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