

# Pastures, Livestock & Water

## Benchmarking and improving water quality for stock in extensive grazing systems

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### Location

Minnipa Agricultural Centre

### Rainfall

Av. Annual: 330 mm

Av. GSR: 244 mm

2025 Total: 281 mm

2025 GSR: 228 mm

### Paddock history

Control group: North 6, barley stubble

HydroSmart group: South 1, barley stubble

### Soil type

Red loam - Red sandy loam

### Soil test

pH 7.6 (CaCl<sub>2</sub>) in top 10cm

### Plot size

~50 ha

### Trial design - Livestock

- Randomised selection and allocation of 197 ewes (2024 drop) into two water quality treatment groups managed under normal Minnipa Agricultural Centre farm conditions
- Two hogget mobs (Control; 96 sheep versus HydroSmart-treated water; 97 sheep)
- HydroSmart shuttle installed on one water trough in the appropriate paddock

**average daily weight gains compared with those on untreated water, suggesting a production advantage within the first three months of monitoring.**

### Why do the trial?

Access to water is crucial for livestock production. The quality and cleanliness of water can impact feed intake, health, immunity, productivity and performance of stock. During periods of drought when water is scarce and water security is low, water quality may be compromised. Strategies to benchmark and improve water quality to ensure futureproofing of water supplies without compromising animal health need to be investigated.

The Minnipa Agricultural Centre component of the SA Discovery Farms project supports the broader SARDI program screening water sources and evaluating practical water-conditioning technologies (e.g. the HydroSmart “shuttle”) to help improve livestock water suitability without compromising animal health.

### How was it done?

Research is being conducted at SA Discovery Farms located across

three climate regions - Turretfield, Minnipa and Struan. Water sources are being identified, screened for quality parameters, and then water treatment technology such as the HydroSmart “shuttle” are being trialled to improve quality. Water quality data will be paired with livestock production and health measures, such as growth, wool production, meat quality, reproductive parameters and immune function.

The Minnipa Agricultural Centre demonstration compared two mobs of ewes grazing medic pasture, with one mob receiving untreated control water in paddock S6 and the other consuming water conditioned through a HydroSmart shuttle in paddock S1.

Baseline measurements were collected on 15 October 2025, including liveweight (LW) and body condition score (BCS). Follow-up LW was then collected on 28 January 2026, representing a 105-day monitoring period. Average daily gain (ADG) was calculated for each animal using baseline and follow-up weights. Animal numbers at Minnipa included 96 control ewes and 97 HydroSmart ewes.

### Key messages

- **Early results indicate that sheep provided with treated water had higher**

Animals were managed as commercial mobs rather than within a replicated experimental design. For the analytical component of this update, a fixed-effects general linear model (Normal distribution with Identity link function) was used to test for a treatment effect on follow-up LW, BCS and ADG.

### What happened?

After 3 months LW with HydroSmart ewes were heavier compared to the Control ewes (73.8 kg versus 71.3 kg). In addition, HydroSmart ewes had a higher ADG compared to Control ewes (0.06 g/d versus 0.04 g/d). BCS did not differ between treatment groups.

Baseline and 3-month serum and water samples are yet to be analysed.

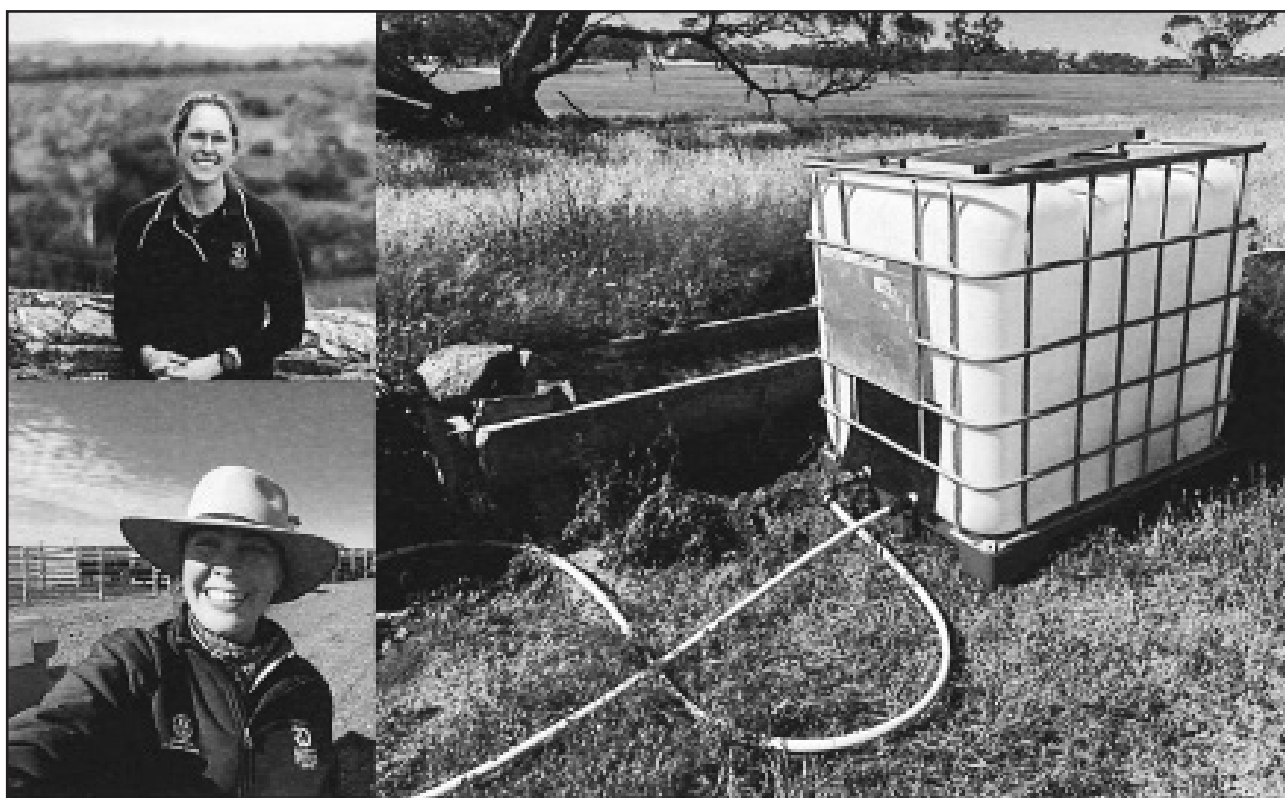
### What does this mean?

Intensive trials at SA Discovery Farms sites, combined with producer insights, are helping the team identify and refine practical water treatment solutions to help optimise water quality and support healthy, productive livestock during dry conditions.

These interim Minnipa results show both groups gained liveweight between October 2025 and late January 2026, with the HydroSmart-treated mob showing higher LW gain and ADG.

As this is a mob-level demonstration (not replicated paddock treatments), these data should be interpreted as an indicative performance signal to be considered alongside water quality measurements, seasonal conditions, and any other management differences between mobs/paddocks.

Next reporting will incorporate data from similar trials currently being conducted at Turretfield Research Centre, and Kybybolite Research Centre. We anticipate producer demonstration sites being established within the later-half of 2026 once on-farm validation of technology has been conducted.



**Figure 1.** SARDI researcher Dr Alyce Lowe (top left) and Bianca Agenbag (bottom left); The HydroSmart “Shuttle” - a solar powered water conditioning unit that is being installed on water troughs in paddocks and evaluated in the project (right).

## Project timeline

- 2025-2026: First round of intensive water-treatment demonstrations at Minnipa, Turretfield and Kybybolite, with preliminary production outcomes (LW, BCS, conception, and water-quality metrics) shared through updates like this one.
- Late 2026: Establishment of producer demonstration sites once the initial technology validation is complete. These sites will provide real-farm examples of how water-treatment solutions perform under commercial conditions.
- 2026-2027: Ongoing monitoring across all sites, with interim results reported annually, highlighting trends in livestock performance, water quality and system reliability.
- Summer 2027/2028: Final round of data collection across all locations.
- 2028: Project completion, integration of results across seasons and sites, and release of final recommendations for producers on water-treatment options to support livestock during dry conditions.

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