



Information when you need it



Macquarie bale up

NOVEMBER 2023

SEASON UPDATE

TRANGIE RESEARCH STATION AWS

Date range: 1 October, 2023 to 4 December, 2023 (65 days).

Download

Summary Seasonal comparison

	2023	2022	2021	2020	2019	10 year mean
Base 12	652.1	447.2 ▼	520.7 ▼	714.8 ▲	667.3 ▲	629.0 ▼
DD1532*	359.7	179.1 ▼	235.3 ▼	394.3 ▲	377.2 ▲	338.0 ▼
Cold shock day ($\leq 11^{\circ}\text{C}$)	22	26 ▲	27 ▲	19 ▼	17 ▼	19.8 ▼
Days above 36°C	5	0 ▼	0 ▼	12 ▲	8 ▲	5.6 ▲
Nights above 25°C	0	0	0	1 ▲	1 ▲	0.5 ▲
Days above 40°C	0	0	0	5 ▲	0	1.0 ▲
Total rainfall (mm)	83.8	193.3 ▲	134.8 ▲	40.4 ▼	24.8 ▼	85.4 ▲
Total radiation (MJ/m^2)	1471.7	1414.6 ▼	1340.0 ▼	1475.6 ▲	1622.0 ▲	1346.5 ▼
Average temperature ($^{\circ}\text{C}$)	21.3	18.0 ▼	18.9 ▼	22.5 ▲	21.8 ▲	21.0 ▼

General guide only; not comprehensive or specific technical advice. Circumstances vary from farm to farm. To the fullest extent permitted by law, CSD expressly disclaims all liability for any loss or damage arising from reliance upon any information, statement or opinion on this website or from any errors or omissions on this website.

Climate observations and data are obtained via the State of Queensland SLO patched point dataset.

Season summary: Source <https://tools.csd.net.au/ddc/results>

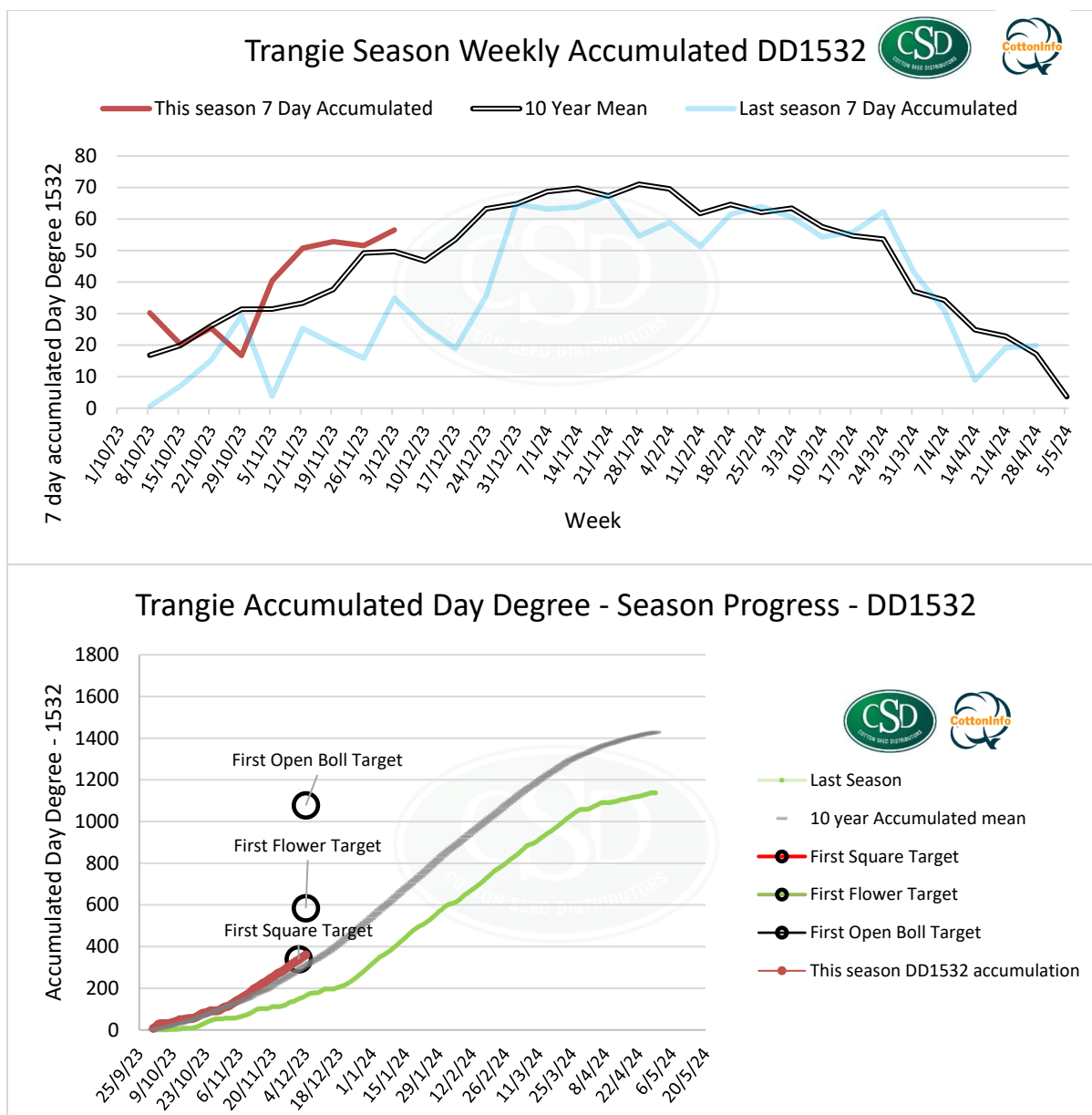


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Season summary: Source <https://tools.csd.net.au/ddc/results>

LAUNCH OF THE RED SOILS FOCUS GROUP

Recent rain meant that it was very well attended bringing together the experience of growers in the Macquarie with the soils, nutrition, and Irrigation experience from the CottonInfo tech leads Jon Baird and Oliver Knox, Blake Palmer from NSW DPI and soil scientist Pat Hulme.

The researchers were all clear that **when** you work these soils is a major factor on maintaining good soil structure. Working the soils when too dry or too wet is detrimental and sometimes irreversible. Dr Pat spoke to the participants about the importance of “Organic Glue” in this system.

Management suggestions

What?	How
Maintain the concentration of organic glues (polysaccharides) in the surface soil	Avoid back to back summer crops in potentially hardsetting soil Avoid bare fallow Practices that slow organic matter decline such as stubble retention, cool burn if you must, at least annual cropping
Minimise physical destruction of soil peds	Minimise cultivation Avoid cultivation of dry potentially hardsetting soil
Avoid running water lower and lower in furrows as the season progresses	Bankless channel layouts with level bays allow this Large mobile irrigation machines are better than furrow irrigation, but stubble cover at planting is essential
Build some structure after the structure destruction of landforming	Grow a cereal crop to maturity between landforming and first cotton crop.

Source: Pat Hulme sustainable soils management 2023

Dr Oliver Knox had a four-hour pondering session while at the airport and below is what he came up with as some of the take home messages of the day.

“Thoughts on the day”:

- Farmer adaptation to the constraints of the hard setting soils is already well advanced.
- The issue is fracturing the clods into soil fragments (particles) that then seal due to water adhesion, holding the soil particles together. This fracturing can occur from rainfall.
 - The mechanical fracturing of the soil (making the ‘flour’ that fills the gaps and then sticks the soil together hard) occurs with cultivation and high intensity rain – not with these irrigations. This is where the problem primarily resides. Furrow and Bankless is not causing this disruption to a great extent, although it can move some sediment and clay around, making it worse. The primary issue with these systems is the water hydrates the water bound soil, but rather than disrupting the bound soil, makes it gelatinous and can then cause it to get worse on drying.
- Summer cropping these soils is a challenge, so the correct tillage when the soil is moist (just how wet is correct to get the right aggregates and avoid particle disruption?) to get good structure is important. (Research question)
- Ground cover (standing stubble, although sometimes too long – shading) and cover crops are being used already.
 - Someone mentioned fodder radish, does it offer any improvement?
 - Rye is likely out due to non-compatibility in our farming systems, but barley and millet in good use.
 - Is there an advantage to cover from standing stubble by incorporation and a fresh cover - providing more inputs, but using water and nutrient? Is this a potential research project?
 - Are fresh cover crops doing what organics (Biosolids, manures, composts - were they available) would provide?
- The soil structure, once lost and hard setting, is only really recovered with regluing. This comes primarily from root exudates. Monocots (the grasses) have a fibrous root system that is fine and captures a large volume of the surface soil. The eudicots (cotton) have a tap root, which although it has laterals tends to provide depth rather than surface exploration.

- Pat Hulme has maps (Glovebox guide to Soil of the Macquarie-Bogan Flood Plain) of the soils of the area, largely extrapolated from the geology. Would be good to know what is being practiced where and overlaying this on the soils information to help with planning of corrective actions and avoidance of further damage.

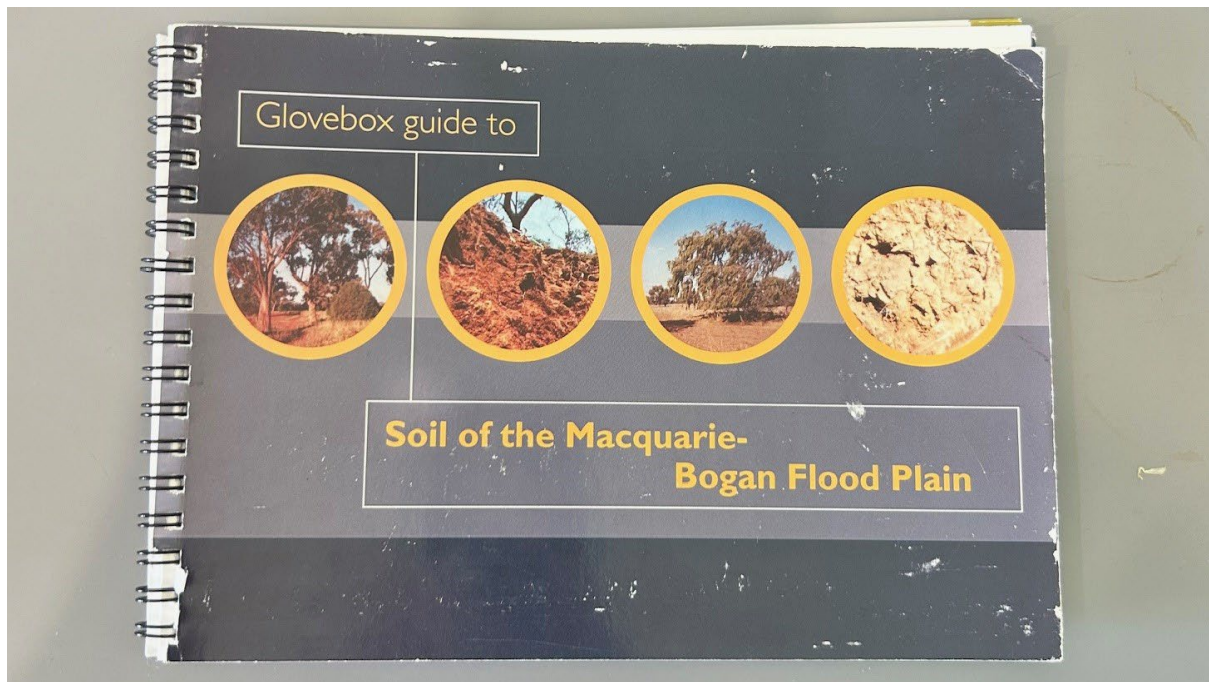
The day provided an opportunity for good broad interaction between everyone. Learning to understand why these soils are difficult to irrigate, as well as learning from those who manage these soils year in year out.

There have also been good results from changing to a flat Bankless design – this is giving more even results. The success of the day was from the strong open communication from growers, consultants and researchers. It was clear that managing red soils is a diverse topic and going forward we may form subgroups according to overhead irrigation, geographical location (north and south). We will have small pop-up field days looking a machinery and other points of interested such as cover crops irrigation layouts and much more.

Our next report from this day will go through Jon Baird and Blake Palmer's nutrition tips so stay tuned for that.

The Macquarie cotton growers acknowledges the support for this project via a grass roots grant funded by CRDC. It is a hot topic and that was evident by the bums on seats – weather meant we needed to bring it indoors, but we were still able to get some soil in thanks to Tim Gainsford who was set to host the day. Thanks to all those who came along it was a great catch up. Thanks to Lou Gall for facilitation and grass roots grants wrangling.





Top Left: Make shift soil pit Top Right: Soil structure Bottom: Glovebox guide to Soil of Macquarie- Bogan Flood Plain.

WIN FOR THE MACQUAIRE VALLEY GROWERS

Speaking of red soils Tim Whitely was awarded the “**Peter Glennie shield, highest yield generated per Day Degree** “. This was on “McMannus” located just south west of Warren.



Tim Whiteley : The Peter Glennie Shield.

NATIONAL SOILS SURVEY

Farmer & Ag-Industry survey of knowledge and extension gaps and opportunities to better manage Australian soils

Have your say: A national survey to understand soil issues, knowledge gaps and opportunities – so far there have not been a large number of cotton growers respond.

Please help us represent what you see as missing in soil research, development, and extension in your region by filling out this national survey.

This survey is part of a Regional Soil Coordinator project that aims to understand the current gaps in soil: knowledge, management, adoption, and extension practices.

The aggregated (anonymous) results from this survey will be published in a report for the Department of Agriculture, Fisheries and Forestry (DAFF). Should you agree to participate, the survey should take approximately 20 minutes to complete and consists of 24 multi-choice questions, with optional space to add more details if desired.

https://melbourneuni.au1.qualtrics.com/ife/form/SV_6JSMQiYe7PnF2YK

BUG CHECKER WORKSHOP

Friday 8th of December 8.00am – 11.00 am @soulfooddepot Narromine. The day will be a great introduction to plant physiology and IPM and SLW management – free beat sheets available for participants growers, consultants and bugcheckers welcome. Register on the QR code below



THE 2023/2024 FASTSTART COTTON ESTABLISHMENT AWARDS ARE NOW OPEN!

Open to growers across Australia's cotton valleys, there's 11 prized for regional winners in the form of \$1000 gift cards to Total Tools. Focused on the pivotal first 70 days of cotton crop establishment, FastStart™ partners CSD and Syngenta will review the entries throughout the course of the season. On top of the \$1000 regional prize, the two overall winners will also receive a Kincrome tool kit for their Ute or workshop valued at nearly \$5000 each. It is super simple to enter – just complete the form by clicking the link. Don't forget to include a picture of you in your crop! Entries are judged on a combination of the



establishment percentage and Planter Uniformity Index (PUI) of each eligible crop. T's & C's here.



[FastStart Cotton Establishment Awards - The FastStart Cotton Program](#)

Regards



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