the **Mungindi grower**

4th December 2020

Crop Check – Moree (Nov 20-23)

CROP STAGE –

- 1 leaf up to 10 nodes
- Sicot748B3F starting to square at 7th and 8th node
- Some replants from hail, rain after planting causing waterlogging
- Most fields have had a particularly slow start, getting hit both ends with poor root development in some cases, evidence of insect chewing (symphylia, wireworm), some disease, rhizoctonia and BRR with fusarium showing its head too, and heavy early thrip pressure on the top! Combine this with storms after planting, early season cool nights and more recently hot dry winds and 35+ degree temperatures, it hasn't been the best start.
- However, reports now that the cotton is finally starting to get away, growing through the disease and able to tolerate the thrips.

IRRIGATION –

- 1st in-crop irrigation has been brought forward on some farms due to slow early development, uneven plant stands and hot dry weather.
- Much concern about water availability and running short this season

INSECTS/BENEFICIALS -

- Thrip pressure has been high, some fields have had 1 or 2 early sprays.
- Reports of active mirids (up to 3 adults/m)
- Grasshoppers showing up in general. Not seeing any danger yet.
- Small heliothis egg lay out west.
- Wire worms at low levels
- Apple dimpling bugs and jassids present in low numbers
- Beneficials building with spiders common, lady beetles and lacewings reported

WEEDS -

- 1 – 2 Glyphosate applied over the top (thrip control added to some sprays)
- cultivation
- use of Dual Gold OTT, as part of IWM strategy
- problem weeds include BYG, FTR, peachvine and melons

DISEASE -

- Rhizoctonia, BRR present, but severity low and cotton starting to grow through now

- Fusarium already present in some fields

What the consultants are saying…..

- "Emerging to 5 nodes, some replant with rain after planting"
- "Refuges (conventional (RRF) cotton) look fantastic, great establishment compared to some Bollgard3 RRF fields which experienced poor early vigour".
- "Growth is particularly slow, particularly Sicot 746B3F, although getting better".
- "I sincerely hope the BOM have their forecast right for a La Nina!!!"
- "Thrips active although not a problem where Triplus was used"
- "Pretty good control, small patches of FTR and BYG".
- "Cultivating some country now, some fields have had 1st RR spray after watering up.
- "Have put down Dual Gold, to change up mode of action, mostly for grasses, BYG and nutgrass"
- "BYG, FTR, use of Dual Gold OTT, part of an integrated weed management program"

The CottonInfo Crop Check is a summary of cotton crop information gathered from a number of local consultants. It should be noted that the information is just a snap shot in time. It does not claim to be a thorough report for each valley, just a summary of comments received.

Thanks to the consultants involved.

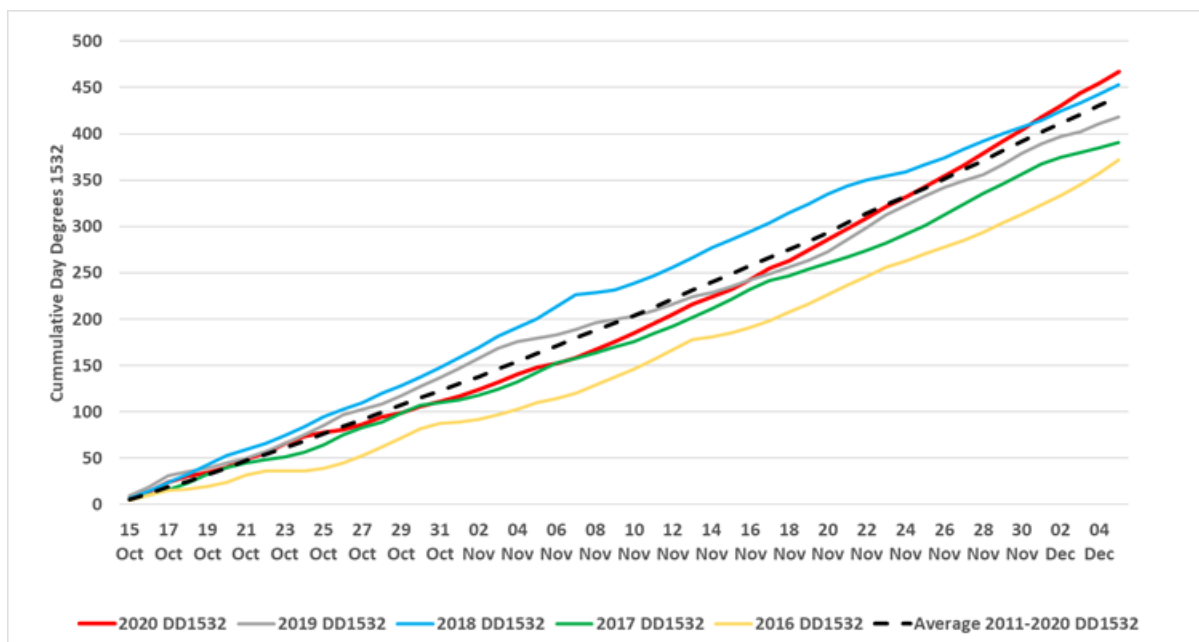## Day Degrees 15th Oct 2020 – 2nd Dec 2020 - Mungindi

Figure 1: Accumulated Day Degrees 2020 DD 2019 DD 1532, 2018 DD 1532 & 10-year average (2010-2019) DD 1532 compared to Base12 (Mungindi)
Source: https://www.csd.net.au/ddc

Table 1: Day Degrees seasonal comparison 15/10/20 – 02/12/2020 (Mungindi)

	2020	2019	2018	2017	2016	10 year mean
Base 12	763.7	689.4	705.2	607.6	644.3	707.6
DD1532	467.2	418	452.7	390.5	371.9	439.9
Cold shock days (≤ 11°C)	3	9	1	3	13	4.4
Days above 36°C	24	17	13	4	13	16
Nights above 25°C	3	2	0	0	1	1.3
Days above 40°C	11	4	3	0	4	4.5
Total rainfall (mm)	42.8	49.8	97	109.2	57.6	67.2
Total radiation (MJ/m2)	1259.7	1304	1283.3	1179.3	1301	1159.8
Average temperature (°C)	26.6	25	25.5	23.6	24	25.5

https://www.csd.net.au/ddc

Day Degrees 15th Oct 2020 – 2nd Dec 2020 - MOREE

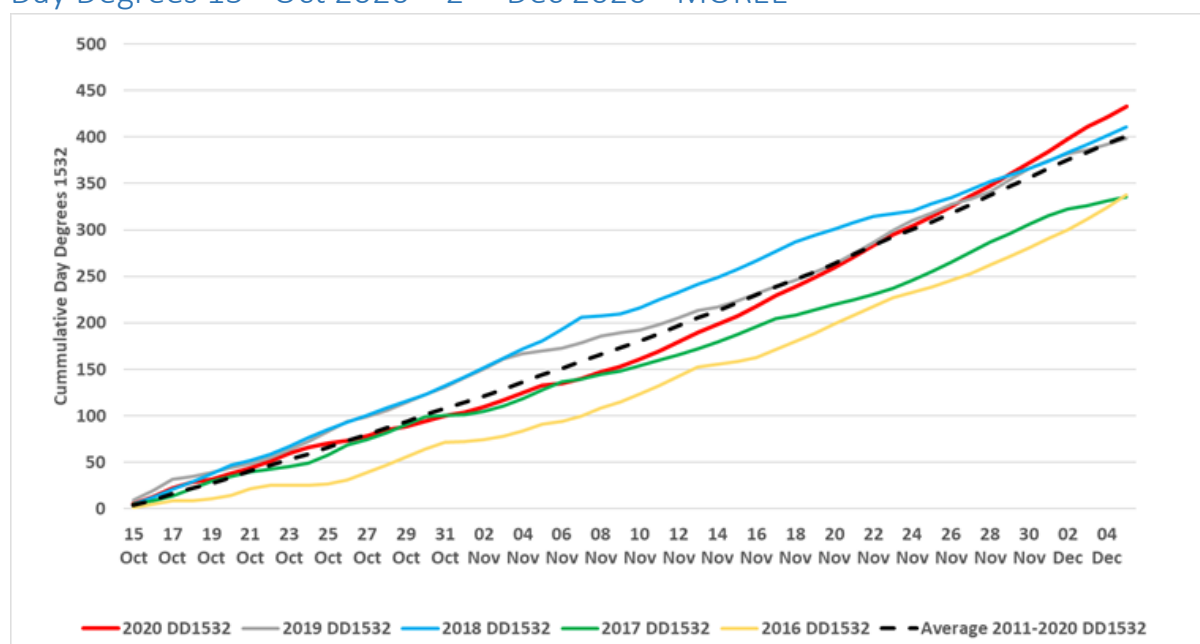*Figure 1: Accumulated Day Degrees 2020 DD 2019 DD 1532, 2018 DD 1532 & 10-year average (2010-2019) DD 1532 compared to Base12 (Moree)*
Source: https://www.csd.net.au/ddc

Table 1: Day Degrees seasonal comparison 15/10/20 – 02/12/2020 (Moree)

	2020	2019	2018	2017	2016	10 year mean
Base 12	704	643.9	639.5	543.2	589.4	640.3
DD1532	432.7	398.7	410.9	335.3	337.7	401.2
Cold shock days (≤ 11°C)	6	7	3	5	15	5.6
Days above 36°C	19	12	6	1	9	9.2
Nights above 25°C	1	0	0	0	1	0.9
Days above 40°C	6	1	2	0	3	2.3
Total rainfall (mm)	84.4	35	92.6	125.8	72.2	86.8
Total radiation (MJ/m2)	1242.2	1303.9	1263.5	1181.9	1296.3	1155.2
Average temperature (°C)	25.4	24.1	24.2	22.3	22.8	24.1

https://www.csd.net.au/ddc

Area Wide Management (Cotton-Catchup) Meeting – Gwydir Valley

The Gwydir Valley CGA and CottonInfo will be continuing our Area Wide Management meetings. Whether you are growing cotton or working within the industry, everyone welcome for a yarn and a cool refreshment.

Our first AWM Meeting will be held at Red Mill

Date: Monday 14th December

Time: 3:30 pm (NSW Time)

2019/20 Crop competition results will be announced

Duy Le, NSW DPI Plant Pathologist join us to discuss the preliminary results of the early season disease surveys and the new cotton disease "re-occurring wilt"

Kate Pearce, Mixed Farming Officer, LLS will provide the latest news on Fall Army Worm

Join us for a celebratory Christmas drink afterwards

If its raining we will be in the shed, if its hot under a shadey tree down on the river – I'll send an update!

Please always Come Clean Go Clean

We look forward to seeing you there.

CSD Gwydir Ambassador Update – Planting and Establishment

Stuart McFadyen, CSD E&D Agronomist, Gwydir, Mungindi

There are 12 CSD Ambassador sites (irrigated, semi irrigated and dryland, 60" and single-skip) in the Gwydir valley. Table 1 provides a snapshot of planting an establishment for the irrigated ambassador sites.

Table 1: Planting and establishment snapshot for Gwydir irrigated Ambassador sites

	Gwydir valley	**Range**	**5 year avg**
Row configuration	1 m		
Previous crops	57% LF cotton, 43% LF cereal		
Planting date	17/10/2020	1/Oct - 1/Nov	17-Oct
Seed wet date	19/10/2020	9/Oct - 1/Nov	21-Oct
Establishment method	88% Watered up, 12% Pre irrigated (hailed, resown)		Watered up
Planting speed (km/Hr)	9.8	8.2 – 11.5	9.0
Planting depth (cm)	2.4	1.75 - 4.5	2.9
Soil temperature	17.8	16.1 - 19.1	
Seven day forecast (DD)	71	60 - 80	
Traffic light	Adequate*	Adequate*	
Planter uniformity index	0.99	0.02 - 4.99	0.31
Avg plant spacing (cm)	11.7	10.0 - 13.0	

Plant stand variability	0.45	0.30 - 0.56	
Field condition score	1.6	1.0 - 2.0	
Monitor rate (seed/m)	10.9	9.0 - 15.0	13.38
Planting rate (kg/Ha)	10.1	8.2 - 13.3	11.9
Final established plants	9.1	7.8 - 11.8	9.0
Final establishment (%)	83.9	65.0 - 92.2	81.1

- The aim of planting is to "do it right, do it once" with a target range of a plant population between 8-12 established plants per metre and an establishment percentage of in excess of 80%.
- **Planting speed:** one of the key factors affecting plant stand uniformity. CSD planter speed trials have found the ideal plant speed of around 8 to 10 km/hr. Electronic drives and speed tube additions are allowing accurate seed placement at increased speeds, however field conditions need to be considered when thinking of planting at higher speeds.
- **Planting depth:** varies according to soil conditions and weather you are watering up or planting into moisture (either rainfall or pre-irrigated).
- **Soil Temperature:** Soil temperature at seed depth should be maintained at 14°C at 8am for three days and on a rising plane at planting.
- **Seven-day forecast:** This provides an indication of the potential day degree (DD) accumulation based upon the proceeding 7-day forecast. 61 - 80 DD is Considered adequate however ensure other planting parameters and conditions are ideal. Cotton will likely take greater than 7 days to emerge. In excess of 81 DD is considered as the requirement for ideal germination and emergence.
- **Traffic Light:** CSD have developed a traffic light system to quickly gauge the conditions at planting, including soil temperature and the 7-day forecast.
- **Planter Uniformity Index (PUI):** is a measure of the uniformity of the planting operation. Ideally, the aim is to establish a uniform plant stand across every row of the field and the farm, closer to zero the better
- **Plant spacing:** CSD are currently working on publishing data on plant spacing and the impact on yield. The plant spacing has become easier to measure and catalogue this season with the release of the Cotton Pop app from Syngenta.
- **Plant Stand Variability:** Is a calculation that is able to be made once the plant stand, plant spacing and the standard deviation of these is gathered using the Cotton pop app. Plant stand variability is a measure of the consistency of the spacing of seedlings established within a row.
- **Field condition score:** this is a rating of the field and its readiness to be planted. It is scored subjectively on a 1-5 scale; with 1 being very good and 5 being poor. The field condition score is a combination of variables such as hill integrity, clod size and variability, stubble cover, weed pressure and trafficability.
- **Monitor rate (seed/m):** Seed per m as determined from the planter monitor which is an alternative measure to planting rate (kg/m).
- **Planting rate (kg/Ha):** Planting rate will depend on your desired plant stand (8-12 plants/m) and the impact of a number of factors that can negatively impact establishment such as bed condition, soil pests, soil temperature, disease and compaction. It's also important to check your seed "statement of seed analysis" which provides germination data (cool and warm germination data) for your seed and seeds per kilogram.
- Final established plants: Aiming for a target range between 8-12 established plants per metre
- **Final establishment (%):** Aiming for an establishment % greater than 80%

Further information:
CSD Facts on Friday: Cotton Planting and Establishment
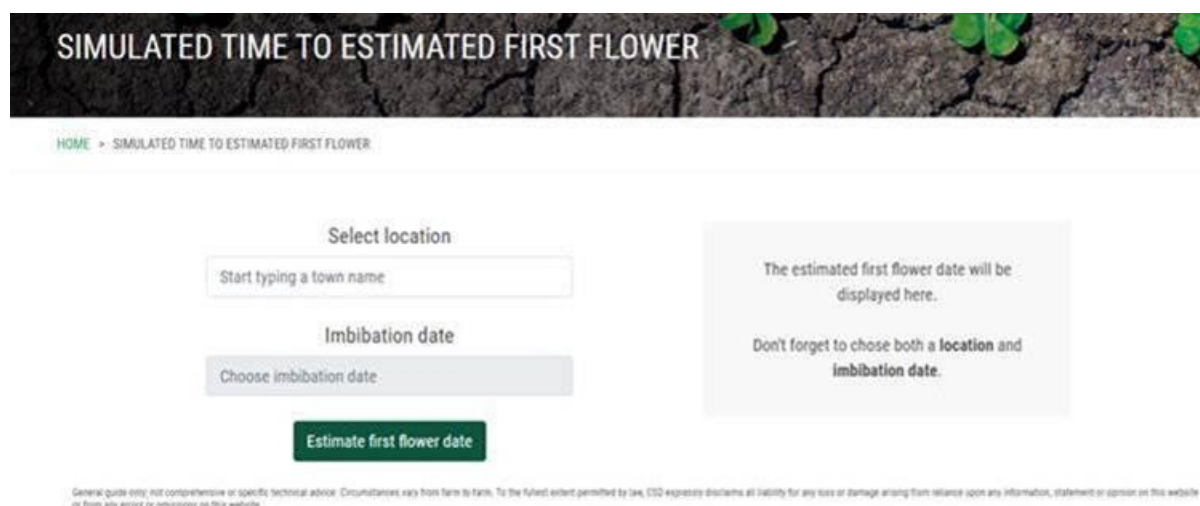
WHOSE THIS STEFF AND BARRY???

STEFF -- CSD Simulated Time to Established First Flower tool

As we move into mid squaring, CSD has released a Simulated Time to Established First Flower tool (STEFF) which is available as part of its membership. This can be viewed at www.csd.net.au/steff Here you can select your region, imbibition date (this is the day of planting if the seed was planted into moisture, or the day of watering up) and the tool will use the local Ambassador and CSD trial information to predict your first flower. The accuracy of the tool is influenced by season condition and other external influences such as disease or insect damage and should be used as a guide only.

Based on the date of watering up across the Gwydir Ambassador sites, Table 2 shows the spread of expected flowering dates. Why not try it yourself?

Table 2. Simulated Time to Estimated First Flowers – STEFF, Gwydir Ambassador sites.

Water Up date	Ambassador data	1St Flower Date
09/10/2020	Earlies water-up date	18/12/20
19/10/2020	Average water-up date	25/12/20
01/11/2020	Latest water-up date	01/01/21
21/10/2020	5-year average water-up date	26/01/20

BARRY - Biometric Agronomy for Realising Representative Yield

BARRY - is a new crop modelling tool developed to assist Australian cotton growers and consultants assess the yield potential of their crop at key growth stages:
· First flower
· Flowering progression
· Cut out
· End of season

BARRY has been developed in partnership with CSIRO, utilising the extensive (six year) agronomic database collected from CSD's Ambassador Network and Variety Trial programs and CSIRO's machine learning algorithms to estimate potential yield with reliable accuracy.

BARRY is available to CSD members, and can be accessed by visiting www.csd.net.au/barry.

Not a CSD member? Then you are missing out on some great tools and information. Membership cost $20/yr. Join here. Australian growers and cotton industry personnel all welcome!

As the crop moves into flowering, in the next newsletter BARRY (Biometric Agronomy for Realising Representative Yield) will be used to predict the yields of the Ambassador sites. This will be repeated at "Cut Out" and at "Ends of Season".

For further information on the Gwydir sites, STEFF, BARRY or any of the CSD agronomy tools, please contact Stuart McFadyen, CSD E&D Agronomist (Gwydir, Mungindi) M. 0428 950 005 E. stuartm@csd.net.au.

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What are the researchers up to?

Cotton Industry Disease Surveys

Early Season disease surveys have been conducted during November across the cotton regions. Duy Le, Pathologist, NSW DPI spent three days in the Gwydir recently and surveyed 12 farms and fields.

A complete report on results from the early disease surveys will be available in a subsequent Gwydir grower. Duy will also be attending the AWM meeting on Monday 14th December.

The crops were from cotyledon to 2-leaf stage. We found Black Root Rot and Rhizoctonia to be common, although severity on most fields was low and cotton plants were growing through. There was also some Alternaria on some fields at low levels.

Thanks to all the grower co-operators who are involved with Industry Disease Surveys.

Duy Le, NSW DPI Cotton Pathologist, ACRI, Janelle Montgomery, CottonInfo and Nicole Bell, NSW DPI.

Update on Weed herbicide resistance testing – NSW DPI

We had a lot of agronomists and growers send in weed samples this year for herbicide resistance testing. Eric Koetz, Research Agronomist - Weeds, NSW DPI has provided us with an update.

- The BYG samples are with QDAF and haven't been tested yet as the QDAF weed team have had some unforeseen staff illness and absence. They are starting them ASAP.
- Windmill and FTRG sample results in 2 weeks, been sprayed and awaiting 14 day assessments.
- Sow-milk thistle had the highest number of samples, good news only 2 populations with resistance to glyphosate and 1 pop developing resistance. No populations tested resistant to 2,4-D. A few did not germinate which either means they were immature or the herbicide application had sterilised the seed.

Results will be sent back to contacts received with the samples as soon as testing is complete.
This work is part of the new CRDC Weeds project: Improved management of weeds in cotton and grains farming systems. Read more about it below.

Meet your cotton researcher – Eric Koetz, Research Agronomist, Weeds Southern Cropping, NSW Department of Primary Industries, Wagga

Where are you from? I grew up on a farm 15 minutes west of Wagga Wagga, went to University in Canberra and worked at CSIRO, Division of Plant Industry for 5 years in farming system projects. I commenced work with NSW DPI in 1996 initially as a Technical Officer in the Pasture group working on drought tolerant perennial pastures and native grasses and Lucerne establishment projects. I had a small career shift into the Wagga Weeds team for 12 years coordinating and supervising IWM projects in the Weed CRC and conducting on farm trials and weed surveys. I moved into the Pulse team for two years responsible for the pulse agronomy trials in southern NSW before being appointed as a Research officer responsible for the Variety Specific Agronomy program on cereals. After two years in this role I was successful in applying for my current role as a Research Agronomist in cropping weeds. I have been working in the Cotton space for 4 years.

How have you ended up in cotton research? Initially appointed to work on Weed projects funded by GRDC an opportunity arose to fill a role in Southern NSW with CRDC as the Technical Lead for Weed Management within the CottonInfo team, working closely with the REO's and the Herbicide Technical Panel.

What excites you about working in the cotton industry? The industry is very inclusive, welcomes both new growers and researchers and is a vibrant industry to work in. With new technologies and herbicide tolerance traits being introduced into Australian cotton there is a renewed emphasis on herbicide resistance monitoring and measurement. Being a part of a team that is developing a Herbicide Resistance management Strategy to help the industry develop stewardship packages is a great opportunity. The team of weed researchers are a great bunch to collaborate with.

What do you like do when you aren't researching? I play cricket in the summer and have started playing veterans cricket representing NSW in the Over 50s State and National titles, I coach my youngest of 3 boys and am involved in local Administration. I umpire AFL in the winter to keep fit, go fishing and camping to relax and have a small farm where we run beef cattle and produce a bit of Lucerne hay.

What's is your current research project: Improved management of weeds in cotton and grains farming systems, funded by CRDC.

Some background: While historically the Australian cotton industry has had a strong integrated weed management system, the extensive use of herbicide tolerant (HT) cotton varieties and the spread of weeds across the landscape has seen resistant and hard to control weeds emerge. The need for knowledge of weeds and management tactics will need to remain a priority, particularly as the industry continues to change, with expansion into new regions and farming systems, particularly rain grown systems and the launch of the third generation of herbicide tolerant traits.

These issues have high significance to the industry, with:

- Glyphosate resistant weeds threatening the sustainability of current farming systems,
- Species shift also threatening the sustainability of current farming systems, with fleabane and feather-top Rhodes grass, for example, very difficult to manage in the current system, especially in summer fallows,
- An ongoing lack of new herbicide solutions to these problems
- Off-target herbicide damage all too common

How will industry benefit from this research?

Underpin and improve the Herbicide Resistance Management Strategy and put in place guidelines and protocols for the stewardship and management of new herbicide tolerance traits in cotton. This is important to prolong the efficacy and use pattern of glyphosate in the Australian cotton farming system. Monitor and identify herbicide resistance and put in place tactics to manage emerging issues.

Further information:

Eric Koetz, Research Agronomist, Weeds
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Dates for the Diary

- 14th December 2020: AWM (Cotton Catch-up) meeting "Red Mill" 3:30pm
- Wednesday & Thursday 13-14: January Cotton pest management course, Narrabri. See attached flyer
- Wednesday 10th February 2021- GVIA Field Day

Janelle Montgomery

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