

Day Degree Accumulation Oct 1- Feb 1

Region	08/09	07/08	Cold Days	Hot Days
Goondiwindi	1593	1544	9	24
Mungindi	1735	162	8	55

Source: <http://www.cottassist.cottoncrc.org.au/>

Irrigation Management after cutout

Crops in the Border Rivers are either at or getting close to cutout. Cutout occurs when the plant has 4-5 nodes above white flower (NAWF) and generally occurs late January to mid February. This is the time of the last effective flower and can be used to plan irrigations after cutout. Last effective flower can be estimated using the LEFT calculation at <http://www.cottassist.cottoncrc.org.au/>. Depending on sowing date and temperature, the last effective white flower will take 50 to 65 days to reach maturity. This means for early sown crops there are at least 50 days left in the growing season in which you need to manage your irrigations and preferably not stress the plant so as to enable this last flower to reach maturity.

At the time of first open boll, crop water use may be 5-7mm/day, but this can decline to only 3-4mm/day during the last 2 to 4 weeks prior to defoliation. If roots are extracting to a good depth (at least 1m) at cutout, plants can easily extract 70 percent of the available water prior to last boll maturity. In cracking clay soils, plants can extract 125 to 150mm soil moisture, which is equivalent to 25 to 30 days water use (5mm/day) with little effect on yield or quality. Therefore on most cotton soils unless water use is above 5mm/day there is no need to irrigate in the 20 to 25 days before defoliation. New flowers that develop in that last 25 days will not have time to mature with the last bolls making up a small contribution to yield. Hence, you only have only 25 to 30 days in which to schedule irrigations.

Assuming an irrigation is made at cutout and the final irrigation will occur 25 to 30 days later, you can plan to apply 1 irrigation or 2 irrigations between the cutout irrigation and the final irrigation depending on soil type, the deficit you prefer, rooting depth and plant water use.

If water is becoming limiting, you can stretch irrigations **after** cutout because the water use drops off significantly in the second half of February and early March. Stretching irrigations **prior to** cutout results in significant yield losses (Yeates et al 2008).

Steve Yeates (Research Agronomist, CSIRO) has been investigating the impacts of stretching irrigation interval **after cutout** on yield and fibre quality of Bollgard II®. Trials at Narrabri showed that by having 1 rather than 2 irrigations after cutout and timing this irrigation to occur between the normal 2 irrigations reduced yield by 10 to 18 per cent if there was no rainfall and as little as 0 to 9 percent if good timely rain fell after this final irrigation (>40mm). In this trial the one irrigation applied after cutout was stretched to 21 days.

Steve suggests that if the irrigation interval was only 14 days, then the yield reductions would have been even less. In the same trial he also found little impact on fibre quality as a result of stretching irrigations after cutout (Table 1). Where there was no irrigation and no rainfall after cutout fibre length decreased 0.02", strength decreased 1.2 g/tex and micronaire increased 0.28. Table 1 shows the effect of no irrigation and only 1 irrigation after cutout on fibre quality, compared to a fully irrigated crop.

Table 1: Effect water stress after cut out on fibre quality. Comparison with fully irrigated*.

	2006 (Sicot 71BR)	2007 (Sicot 71BR)	2008 (Sicot 70BRF)
Difference	No irrigation or rainfall after cut out	1 irrigation after cut out + no rainfall	1 irrigation after cut out + no rainfall
Length (inch)	-0.02	-0.03	+0.07
Strength g/tex)	-1.3	-1.4	+0.06
Micronaire	+0.28	+0.17	+0.17

* Data for hand picked areas where plastic sheet prevented rainfall on dry treatments. These experiments were conducted at Narrabri.

Thanks to Steve Yeates (Research Agronomist, CSIRO, Narrabri) and Jenelle Montgomery (NSW DPI) for providing the information for this article.

Yeates, S. et al (2008) Towards better water management of Bollgard II cotton. Paper presented at the 2008 Australian Cotton Conference.

Cotton Industry BIG DAY OUT

Presented by: Cotton CRC and CRDC

Thursday 26th Feb 10:30am – 7.00pm
Headlining 'Keytah', Moree – winner of 2008 AgriRisk Innovative Grower of the Year award.
Featuring farming practices that can make no-till cotton a reality!

Jenelle Hare & Geoff McIntyre plan to attend and will have seats available in one or two cars for growers & consultants interested in travelling with us. Geoff will overnight in Moree & Jenelle is returning on the day.

Funding may be available to help subsidise cost of accommodation – please contact Jenelle or Geoff if interested.

Date Claimer.

The Famous Macintyre Valley Cotton Field Day

11 March, 2009

'Kalanga', winner of the 2008 Macintyre Valley Farm of the Year.

The theme, 'Bank to Bank', encompasses an array of topics.

- Bankless channel irrigation systems.
- No-till irrigated farming systems.
- Innovations in irrigation management.

More information www.macfieldday.com/