

### Day Degree Accumulation to 12 October 2011.

Day degree accumulation has been adjusted by 5.2°C for each cold shock day.

District		Season 11/12	Season 10/11	Average	Hot Shock	Cold Shock
Emerald	From 15/09/11	228	269	296	0	10
Theodore	From 28/09/11	88	149	150	0	8

### Crop Stage versus Day Degree Accumulation.

Emerg.	5th leaf	1st Sq	1st Flow	Peak Flow	Cracked Boll	60% open
80	330	505	777	1302	1527	2050

### Cold shocks

Despite some reasonably warm days across CQ during the planting windows, the cool nights have contributed to the slow emergence & low plant vigour. Minimum temperatures below 11°C is deemed a cold shock. Cold shocks have greatest impact on early plant development and will delay the timing of emergence, squaring and flowering estimated as a delay to flowering by 5.2 day degrees for each cold shock.

Recent research by CSIRO have tested the cold shock response and negative impacts on crop development were not seen until plants had been exposed to at least 10 nights at 10°C, or for at least 5 nights at 5°C. When delays to first flower were measured, the delays were estimated by day degrees alone suggesting no physiological damage to the plant. This was also supported by research that measured the integrity of the plant tissue.

This suggests that cold temperatures (around 10 °C) generally only delays crop development rather than damage plant tissue resulting in death. Poor establishment in these conditions are more likely due to the additional confounding effects of increased seedling disease or herbicide damage that are correlated with slow seedling growth in the field.

So far CQ has experienced an unusually high number of cold shocks for this time:

- For Emerald only 6 years out of 55 years have had at least 10 cold days (approximately 90th percentile). (for period 15/09 – 12/10)
- For Theodore no year has had more than 8 cold days. (for period 28/09 – 12/10)

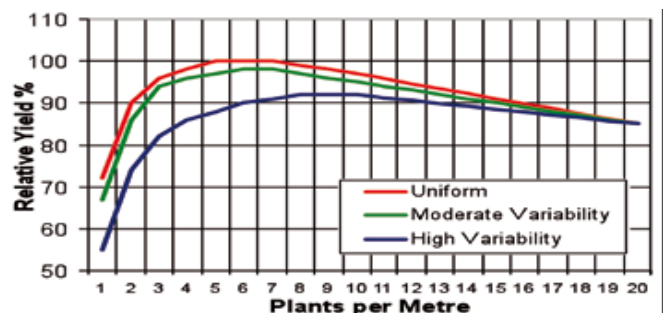
Thanks to Michael Bange for help with Cold Shock & Replant articles. For more information on replanting see p42 Production Manual or CSD replant calculator.

### Replant?

The recent cool temperatures have seen slow germination, poor plant vigour and increased incidence of seedling diseases. Hail damage has also reduced the plant stand. A number of growers are now weighing up the prospect of a replant. At more than \$110/ha & with time running out especially if predicted rain eventuates, the decision to replant can be a difficult one. Replant decisions should be made on the basis of stand losses, not on the size of seedlings.

In addition to determining the average number of plants per metre, also take note of the uniformity. A plant stand with high variability is one having 2 or more gaps greater than 50cm in length every 5 metres of row. An evenly spaced plant population of 5-13 plants/m<sup>2</sup> is considered optimal.

Relative yield potential at a range of Plant Stand Uniformities. (G Constable, 1997) 2012 Cotton Production Manual p42



Recent work at Narrabri, Moree and Hillson has investigated whether the plant density work on conventional still holds true for Bollgard II. There was no evidence in these studies that Bollgard II varieties at any population limited yield compared with its non-Bollgard II equivalent. With the exception of the low plant population at Hillston of 2.8 plants/m<sup>2</sup>, yield and quality did not change (range 4 to 17 plants/m<sup>2</sup>).

If managing a low plant population, develop a plan to deal with the potential weed problem due to lack of competition.

### Disease & Rogue Cotton Survey

The annual disease survey is on in just over two weeks time. Let me know if you have something you would like the pathologists to take a look at. Every year the industry uses this survey as an opportunity to take stock of ratoon & volunteer cotton. The last two years has seen CQ top the list as having the most rogue cotton. This season's results are likely to be presented at cotton conference so it would be great to be able to report a change in our placing.