



Making decisions with limited water?

Water availability will be a key consideration for some (if not all!) growers during the coming season. So in this edition, we take a look at management options for growers with a limited water supply.

If you're facing a limited water year, you could choose to:

- Fully irrigate a reduced area of irrigation
- Deficit irrigate a larger crop area
- Include different crops that require less irrigation
- Change your plant row configuration

Full irrigation occurs when irrigation water is applied to completely meet crop water demand or evapotranspiration (ET_c) that is not supplied by rainfall or stored soil water. In contrast, **deficit irrigation** occurs when less irrigation water is applied than that required to fully satisfy ET_c. In this case, water stress occurs at some time/s during the growing season, and irrigation applications should be timed to the most yield sensitive growth periods.

Different crops have different season ET_c requirements and thus crop choice, maturity length and planting time can be used to adjust to limited water. If, when calculating irrigated area for cotton, the irrigation water supply is pushed below 5-6 ML/ha, then **partially irrigated skip row** may be an option in some regions.

Row configuration:

There are a range of different configurations available to growers in semi-irrigated situations: **single skip, 1.5m and 2m (60 and 80 inch), double skip, super single and some non-uniform configurations**. These configurations can help reduce the risk of crop failure, buy time to gain rainfall or irrigations,

spread the irrigation intervals, make better use of in-crop rainfall and reduce variable costs.

Of course, what works best in one farming system may not in another due to differences in soil type, environment, cropping history, available equipment, water availability and other factors.

So, to help you make a decision, we've outlined the full series of points for you to consider when deciding whether you'd benefit from using skip row configurations, and which skip row configuration to use, on page 28 of the 2015 [Australian Cotton Production Manual](#).

Irrigation system:

Furrow remains the dominant irrigation method, and relatively small management changes - [like those outlined here](#) - may significantly increase efficiency.

Meanwhile, a recent study (funded by CRDC) has found that the number of **centre pivot and lateral move** (CPLM) irrigation systems has increased significantly due to their water and labour savings. It found that the average water applied by CPLM's was 30 per cent less than furrow, while achieving similar yields; and the labour requirement was 25-30 per cent of that needed for furrow. [Read the full report here](#).

What will other growers be doing with limited water?



Steve Maunder, 'Undoolya' Boggabri:

We have 100 per cent water allocation for 2015-16, but no carryover. We're planning on planting the same amount as last year, but it will all depend on rainfall up to planting (as that first water up often takes a lot of water). Our current thinking is to buy some temporary water, or to put some paddocks in as double skip and water up. We're currently all fallow irrigated - we'd prefer a lateral system for water savings, more strategic smaller applications and the ability to manage some insect pressure, but can't justify the cost at present.

Mark Winter, 'Bethel' Moree:



At this stage, we have zero river allocation for the coming season, and about 10 percent in our on-farm storage. We have 85ha ready to plant in a solid configuration, with two more fields totalling 285ha ready to go. We'll need to make a decision between now and planting whether we plant more single skip, or keep the 85ha solid. Last year we planted a field in single skip and had encouraging results - we managed to get 11.2 bales/ha off the field, which was 1.6 bales/ML (including 200mm rainfall in season). We were aiming for 9 bales, so we were pretty happy with 11.2. All our irrigation is flood, and we're happy with that system.

For more information?

- Contact CottonInfo water use efficiency technical specialists: [Janelle Montgomery](#) (NSW) and [Lance Pendergast](#) (QLD).
- Visit the [CottonInfo water management page](#) (and check out the free resources).
- Download [WATERpak](#) and the [Australian Cotton Production Manual](#).
- View the [limited water videos](#) put together by CottonInfo.
- Visit [myBMP's water management module](#) for best practice.



Limited water management research



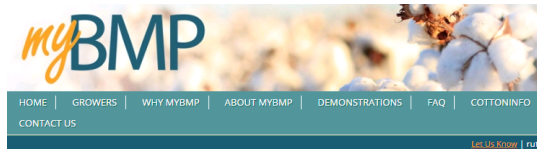
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This is designed to help you make efficiency gains by bringing together the latest research and knowledge on water use and management and distilling it into simple to use best practices. Topics covered in the module range from managing and measuring water sources and collection through to distribution - all aimed at improving efficiency and yield. [Visit the myBMP water management module.](#)



Water Management

This module is designed to help you make efficiency gains by bringing together the latest research and knowledge on water use and management. Topics range from managing and measuring water sources and collection (storages, bores, overland flow and stored soil moisture) through to field distribution.

All aspects of water application are covered including surface irrigation, centre pivot and lateral moves, drip irrigation as well as dryland water usage.

Once you have completed this module to at least Level 2, you will have achieved the following:

- Used available tools to schedule your irrigations and monitor soil water levels;
- Estimated your soils capacity to hold and store water for your fields and soil types;
- Estimated your losses from storages and channels;
- Maintained your storages to minimise leaks and seepage;
- Maximised crop yields by understanding and managing bore water quality;
- Identified problem areas in irrigation fields;
- Matched your flow rates to soil, slope and run length so furrows come out evenly;
- Planned for and installed your centre pivot or lateral move with a professional so it works effectively;
- Ensured your drip irrigation system is operating effectively.



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