



## Smart irrigation control in cotton

### A grower case study

#### PROPERTY NAME

- Owner Rob Houghton, Leeton, NSW
- Farm area: 530 ha
- Irrigation area: 300 ha
- Area developed with SIP2 research: 150 ha
- Water source: MIA scheme
- Soil type: heavy clay loam soils
- Rainfall: 400mm

#### What SIP2 research was adopted?

Smart sensors to automate bankless irrigation technology.

#### What were the primary factors contributing to the decision to adopt?

Eliminating siphons and rotobucks: Rob was becoming annoyed with the constant labour requirements of siphons and rotobucks, which became a drag on farm productivity, so he began researching automation after moving to a bankless irrigation system. His first foray into irrigation automation technology commenced almost eight years ago and after finding a suitable local supplier, sensors were trialled soon afterwards.



Agronomic benefits: A short growing season in Australia's southernmost recognised cotton growing area requires acute agronomic management, without the flexibility to grow cotton late in season to overcome any setbacks, such as waterlogging. Rob believes the greatest benefits of automation comes from more accurately managing the cotton planting window, in-season growing conditions and reducing the incidence of either water stress or water deficits.

*"When I started with water soil pressure sensors and capacitance probes, I was surprised how my 'gut feel' for when the plant needed water was out by three days on some occasions. There is still a need for in-field validation from an irrigation management point of view, and we don't rely totally on the information, rather physical management and in-field data complement each other"*

A major co-benefit is the accumulation of valuable field history of inputs and yield outputs, that once collated give provides further agronomic insights.

## Smarter Irrigation for Profit

PHASE II CASE STUDIES



**Water and labour savings:** The objective water and soil measurements of the probes and water height sensors has greatly reduced the need to be “tearing around the farm checking things”, according to Rob. Not only does the telemetry provide labour savings, but real data of soil moisture status has saved him “about a meg” per growing season. Not only saving water but managing storm events with automation has OH&S advantages, as tail return pumps are activated when water levels in-field reach a certain height, thereby avoiding plant saturation and return pumps becoming overwhelmed.

### What worked well? (installation/ and benefits)

Installation was easy and telemetry can be seamlessly integrated into existing farm PC and i-phone technology. Software upgrades, when required did not interrupt or interfere with irrigation operations. The technology is easy to navigate and control. The provider we used, [Bidgee Pumps](#) were always there to help during setup if we needed it.

### What did not work so well in the installation or ongoing management? (What were the challenges?)

The only challenges encountered, according to Rob were relatively minor. Making sure the hardware was robust enough to handle the elements has been the main issue over the automation journey, but Rob is confident the current supplier has gone the extra mile to ensure longevity and functionality of sensor technology in the field.

Finding representative soil types for location of probes requires a degree of subjective assessment when installing across many fields with varying soil types. As mentioned, irrigation managers work concurrently with live data to ensure irrigation accuracy is achieved and the periods of stress on the plant are minimized.

### What would you have done differently as part of the investment/adoption?

There are no regrets or nothing that would necessarily be changed in this journey towards automation. As time has progressed, technology functionality and cost has improved.

### Do you have plans to further upgrade the system going forward?

Yes, we are planning on automating the remaining 150 ha with pumps, gates and in-field sensors this winter. Also, some of the field slope in the bays requires remediation, as some parts of the layout are not getting the drainage needed to maximise cotton yield.



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