

FINALIST

SAUNDERS FARMING PTY LTD, CRAIG AND SHARRON SAUNDERS, ST GEORGE, QLD



IN BRIEF

FARM NAME:	Saunders Farming Pty Ltd
OWNED/MANAGED BY:	Craig and Sharron Saunders
LOCATION:	St George, QLD
TOTAL AREA:	3,000 hectares
COTTON AREA:	647 hectares
2010/11 YIELD:	11.25 bales/ha whole farm average
2010/11 WATER:	7.2 ML/ha
CONSULTANT:	Justin Schultz (WaterBiz), previously Sarah Hood (SIS)
MARKETED BY:	Namoi Cotton
GINNED BY:	Namoi Cotton

SAUNDERS FARMING IS AN IRRIGATED COTTON, DRYLAND WHEAT AND GRAZING ENTERPRISE ON THREE PROPERTIES IN THE ST GEORGE IRRIGATION AREA.

While through-the-bank (TTB) channel irrigation systems have started to appear in the industry, Saunders Farming has taken this concept one step further in an innovative approach and a first for the Australian cotton industry. In partnership with WaterBiz consultancy, the Saunders' designed and constructed an automated surface irrigation system that added a variable-rates-of-flow function into a syphon-less watering set up. The variable system has meant cotton fields could be watered according to the crop's specific requirement at the time, with rates adjusted during the watering based on extensive moisture probe data (flumes, Irrimate, C-Probes and the new SISCO tool).

The results to date have been remarkable. A 25% water saving, a 20% increase in yield and a 50% reduction in labour requirements, along with the less tangible benefit of a far better work-life balance on the farm. In addition, extensive evaluation has found:

- Uniformity (infiltration amount along the field length), 90% or better
- Application Efficiency (total water onto the field versus total water infiltrated), 85% or better
- Requirement Efficiency (% or deficit to be filled), 100%
- Average run time, eight hours

The quest for optimisation of surface irrigation started over seven years ago. The Irrimate tools confirmed that the only real option for efficient watering, due to soil types and run lengths, was to run the system with high flow rates.

But higher flow rates meant more siphons and an increase in labour, the opposite of what the Saunders' wanted to achieve. And so, the brief for this innovation was clear: to retrofit existing irrigation infrastructure in a way that was easy to maintain, gave consistent results across the farm and that would reduce labour and increase water use efficiency.

In 2009, the existing farm set up started to see the replacement of three inch siphons set every metre, with through-the-bank pipes. The pipes are made from recycled milk bottles, set at 12 metre spacing's and water 11 furrows each. Water moves from the head ditch through the bank and directly onto the field. Each pipe is fitted with an adjustable valve, or a "lid" that can be set at three different points allowing three different flow rates. During an irrigation, the water pools at one end of the field and then starts to slowly trickle down the furrows and when it's finished, the "lid" is simply closed. Field lengths vary from 500 metres to 1.7km, with the rates adjusted accordingly.

Extensive trials quickly showed the potential of the system, and now three quarters of the farm has been fitted with automated surface irrigation. What used to take a team of people 18-20 hours (and a whole lot of sweat starting syphons) to water just one 1.5km long field now takes one person a day to water the whole farm. The need for night time work is almost nil, the pipes are very easy to start and require far less work in the heat of summer.

But the innovation doesn't stop here. Future plans are for a fully automated, infinitely variable system linked to telemetry and soil moisture data that can be run from the farm office.