NSW SUSTAINING THE BASIN *Irrigated farm modernisation*

Case study: Bartel & Williams families, Moree

May 2012

Location

'Greenbah' is located 7 km west of Moree on the Gwydir River.

Water Sources

Two water sources, a 90 ML river licence and a 276 ML bore licence.

Soil type

Range from chocolate loams to red loams.

Enterprises

Predominantly winter cereals (wheat and barley) and opportunity summer crops (cotton and mungbeans).

Irrigation system

Furrow irrigation and a centre pivot irrigator.

Area irrigated

The total farm area is 916 ha, 796 ha of dryland and 120 ha of irrigation.

Background

Gavin Bartel and his father-in-law Lindsay Williams are predominantly winter cereal irrigators.

Having flexibility in their farming system to adapt to the impacts of climate variability and fluctuating commodity prices has always been high on their list of priorities and part of their long-term plan to remain financially viable into the future.

Gavin and Lindsay intend to optimise their irrigation efficiency by focusing their enterprises on producing mainly winter cereals and switching to summer crops only if commodity prices are good.

Lindsay Williams and Gavin Bartel taking delivery of the new towable centre pivot. Image: S. Bray

One barrier to their irrigation enterprise was that irrigation infrastructure had not been developed on 'Greenbah' to utilise the river water entitlement. Therefore, irrigated production was restricted to their bore water entitlement, which had recently been reduced due to water reforms.

At present crop water use from a field during winter is around 4mm a day compared to 10 mm per day during summer. Therefore, winter cropping reduces water demand over a cropping season and optimises the effective use of their bore allocation.

They had previously increased efficiencies and improved flexibility in their farming enterprise by converting their traditional furrow irrigation system to a centre pivot system, so they were keen to continue down this path.

They have even taken the need for flexibility one step further by making their new centre pivots towable. This gives them more options to accommodate crop needs during extreme weather conditions, irrigate larger areas with the existing bore licence and maximise their annual production.

Description of the Project

The infrastructure project on 'Greenbah' involved the installation of two, towable, six span T-L centre pivot machines.

The total project included laser levelling old furrow irrigation country, installing an underground mainline to the new pivot site, a concrete pad for the pivot, plus the installation and set up of the system.

Water Dynamics from Goondiwindi developed the design specifications, matching the system to the crop requirements for an area of 90 ha with enough flexibility to go to 120 ha depending on the climatic conditions and commodity prices.

The machine has been designed according to the flow rate of the bore. It is fitted with *Nelson*™ pressure regulated sprinklers delivering 18 L per second with an application rate of 5 mm per day.

Gavin Bartel said it's more efficient for one person to run a centre pivot and despite the water cutbacks he can still irrigate the optimum amount of land.

"I can now grow more winter crops with less water during a time of the year where losses from evaporation are minimised," he said.

The benefits

The benefits of this project are:

- A 30% saving on past crop water use using furrow irrigation.
- Less deep drainage because only enough water is being applied to fill the effective root zone of the crop.
- Significant labour savings. For example, running a centre pivot for 30 ha takes around 30 minutes of labour per irrigation cycle, compared to four to five hours of labour with a furrow operation.
- Greater flexibility across the farm to irrigate different crops and optimise the use of the current bore licence.

What aspect of the project proved most challenging?

Mr Bartel indicated that completing the project within the very short time frames was challenging especially as the weather was so unpredictable in 2010.

"However, we were close to completing the installation on time despite heavy summer rain making it difficult," he said.

What advice would you give other irrigators?

Mr Bartel believes that the key to success is to thoroughly research and investigate all the options available to you.

"Every situation is different so don't assume anything," he said.

What are your thoughts on the project?

Mr Bartel said the legal aspects around GST needed to be worked out before the project started, to streamline the process, but overall it was a good process."

"If you are lucky enough to have excess allocation to trade, this type of initiative is a good option to accelerate your on-farm infrastructure improvements," he said.

Pivot construction under way. Image: J. Montgomery

Gavin Bartel with the completed centre pivot. Image: S. Bray

The Australian Government is providing $83 million to this project through its *Water for the Future* initiative.

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