NSW SUSTAINING THE BASIN *Irrigated farm modernisation*

Case study: Angelo Saccon, Bonshaw

May 2012

Location

25 km east of Bonshaw.

Water Sources

267 ML of regulated river entitlement and 250 ML of unregulated river entitlement.

Soil type

River loams running up to steeper country.

Enterprises

The main irrigation enterprises are lucerne, vegetables and beef cattle.

Irrigation system

126 ha of hand shift, 24 ha of solid set and a 32.ha centre pivot.

Area irrigated

92 ha in total out of 475 ha.

Background

Angelo and Nicole Saccon operate a 475 ha mixed irrigation and dryland farming business located 25 km east of Bonshaw on the banks of the Dumaresq River in northern NSW.

The 'Riverview' irrigation system was developed in the early 1980's, consisting of solid set and hand shift sprinkler lines. Travelling irrigators were also used to increase the area of land irrigated, however they were phased out due to running costs and water application inefficiencies and replaced in 2005 with a 32 ha centre pivot.

The Saccons knew they needed to improve the poor application of water with the handshift and solid set systems which resulted in variable crop yields. They were also looking to the future to make their property more productive and sustainable. Larger areas could be irrigated with a centre pivot which convinced them that this would be a solution to replace the older inefficient irrigation infrastructure, conserve water, enable crop rotations and help drought proof their property.

Angelo Saccon at the control centre of his new centre pivot. Image: J. Easey

Description of the project

To identify where water savings could be achieved, the Saccons engaged a local Approved Irrigation Consultant to complete an on-farm water use efficiency assessment. The assessment confirmed the Saccon's thoughts by identifying that the distribution uniformity of the solid set irrigation system was only 52% resulting in the field being watered unevenly during an irrigation event. Consequently, lucerne yields across the field were highly variable.

To increase whole farm efficiency and reduce water losses, the Consultant recommended that the best option was to replace 14 ha of the high pressure, solid set system, with a low pressure, three span centre pivot.

Included in the redevelopment was the installation of a one km PVC mainline to convey water from the northern section of the farm to the new centre pivot system.

Four pump stations were upgraded to ensure peak crop water demands are met. New water meters were also installed at the pump stations and a capacitance probe was purchased to accurately monitor water use and enable the Saccons to benchmark improvements in water use efficiency over time.

The payback period for the new centre pivot with the anticipated increases in lucerne yields in combination with a reduction in pumping costs, is expected to be approximately five years.

If this project achieves the predicted outcomes, the Saccon family plan to replace the rest of the solid set irrigation system and hand shift systems (54 ha) with another centre pivot and put the area under intensive vegetable production such as pumpkins.

The benefits

The following benefits are expected as a result of the project:

- The expected water savings are in the order of 30% or 25 ML per annum.
- A 50% or $3000 saving in energy costs. The high pressure solid set system (60 to 100 psi) costs around $100 per ML to move water using the diesel pump. The new low pressure centre pivot (20 to 30 psi) costs about $50 per ML.
- An increase in distribution uniformity will also increase lucerne yields by a minimum of 10% leading to a net profit increase of approximately $10,000 per annum.
- Soil surface crusting and reduced seed germination because of heavy droplets from the previous sprinkler heads will be minimised with the new low impact nozzles.
- Significantly reduced labour costs.
- Reduced maintenance requirements.

What aspect of the project proved most challenging?

The Saccons found the detailed Tender application difficult to complete and had to seek advice from the NSW DPI project staff.

Mr Saccon also commented that the generally tight timeframes of the Tender process was frustrating.

What advice would you give other irrigators?

The Saccons recommend other irrigators considering similar projects to do a lot of research especially into the likely impacts and benefits with respect to your farm business.

Angelo Saccon at the site where the new centre pivot is being installed. Image: J. Easey.

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

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