

NSW SUSTAINING THE BASIN *Irrigated farm modernisation*

Stewart Crawford, Narromine

April 2014

Location: 'Bungarley' Narromine

Water Source: Macquarie Regulated Water Entitlement

Soil Type: Loam to clay loam surface soil over a light medium clay sub soil.

Existing irrigation system: Furrows, bays and sub-surface drip.

Total savings: 296 ML with 75% to be returned to the environment.

Stewart Crawford is a third generation farmer at Narromine.

Mr Crawford installed his first trial of a drip system consisting of 50 hectares after visiting Arizona in 1996 and looking at the systems used there. He then installed another 125ha of sub-surface drip irrigation in 2004.

As a result of these developments, Mr Crawford has increased yield and water savings - two things, which he says drives the economics of drip irrigation.

Mr Crawford was successful in Round 1 of the NSW Sustaining the Basin: Irrigated Farm Modernisation (STBIFM) program with funding for an additional 135 hectares of sub-surface drip irrigation on 1m centres to replace bay and furrow irrigation.

Description of the project

The Round 1 project focused on increasing storage capacity and irrigation efficiency and included:

- Extending the supply channel from the new storage to supply water to fields.



Stewart Crawford, successful in both Rounds 1 and 2. Image: S.Priest

“Do your homework and don’t scrimp on design”

- Installing 135 hectares of sub-surface drip irrigation.
- Upgrading a diesel pump, new sand filters, control and fertigation systems.

The benefits of the project

Mr Crawford has seen a number of benefits with sub-surface drip irrigation on his farm including:

- Water savings of up to 50% on their sandy loam soils,
- Significant increases in yield,
- Increased flexibility for growing higher value crops,
- Labour savings,
- Improved soil condition eg tilth, friability and structure, by not running water over the top of the soils

- The system can be controlled remotely by smart phone.

Landholders experience

Mr Crawford says the soil on his property is good.

“The ‘Bungarley’ soil grows good crops but it has inherently used a lot of water.”

“That was our driver - to see if we could do a bit better with that and increase our yields as well.”

“So we put in our first 50 hectares of drip in 1997 another 125 ha in 2004 and now the additional 135ha in 2013,” Mr Crawford said.

Mr Crawford highlights that because of energy prices constantly rising, any way of reducing these costs was a priority during the design stage.

“The big part of driving a pressurised drip system or an overhead system is fuel.”

“We’ve taken a few little shortcuts in previous designs so with this design we’ve tried to focus totally on low energy use.”

“We’ve done everything in our power to make these systems run at as lower pressure as possible, and hence save fuel.”

What aspect was most challenging

Mr Crawford found getting the drip installed and operating prior to the cotton cropping season a challenge.

“The drip supply company worked well with us to get the installation completed so the system was up and running.”

“The biggest challenge for us was the short timeframes from installation to planting of the next crop,” Mr Crawford said.



Sub-mains in the trench. Image: S. Priest



Connection to the drip tape. Image: S. Priest



Drip tape connected to the PVC pipe. Image: S. Priest

What advice would you give to others

Mr Crawford couldn't be clearer on the need to do your homework and not scrimp on design.

"We had experience with the sub-surface drip so we knew what we wanted and in some ways it was a bit easier for us."

"But I would encourage other irrigators with no experience to get advice from a couple of sources."

"Ask existing growers as well as the retailers, to get a balanced view."

"I still call my contacts in Arizona to get their opinion when we identify issues."

"It is really important to get the best advice you can and we then employed local specialists to design the system to give us what we need," Mr Crawford said.

What are your thoughts on STBIFM?

Mr Crawford says it's been imperative!

"The numbers just don't stack up as far as financing it all yourself, given that we're not really getting any more for our produce than what we were back when we put it in 15 years ago."

"The economics weren't there."

"We'd done the work, and we knew the way we wanted to go but until this project came along we weren't really in a financial situation where we could do it." Mr Crawford said.

This project is funded by the Australian Government's 'Sustainable Rural Water Use and Infrastructure' Program.



Laying the drip tape. Image: A. McCaffery



Filtration system in the paddock. Image: S. Priest

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