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Remote watering monitoring case study with Duncan Banks

- Using technology to reduce the time and labour costs of water monitoring
- Combining a commercial-style water meter with communication technology to remotely monitor 30 water troughs
- Data transmitted by a two-way radio to computer and mobile phone shows highs and lows of water flow.

Name: Duncan Banks

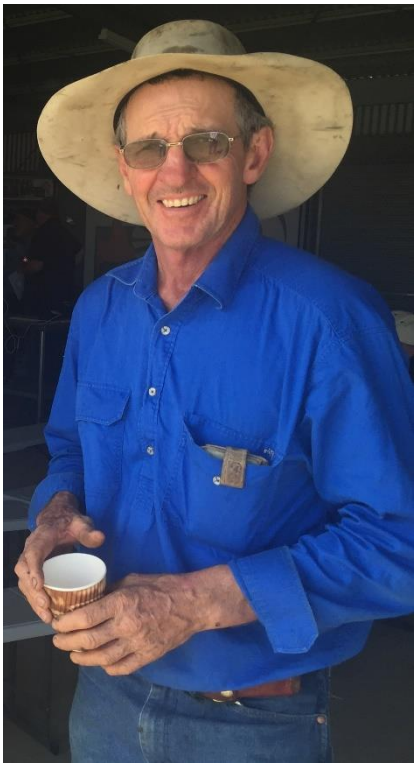
Property: Dunwold, Dirranbandi

Enterprise type: 100 per cent super fine Merino – wool production, cattle agistment or trading as allowed by seasons.

Size: 4000ha

Country type: Mixed open country and sand hills, Oldman salt bush plantation.

Flock size: 3500 head



Western Queensland fine wool grower Duncan Banks has, like most primary producers, an unwavering appreciation for water, so it has made sense to him to invest in innovative technology that allows him to monitor stock water from his house.

Four years ago, the Dirranbandi producer installed a commercial-type water meter on the main polypipe from a neighbouring artesian bore to 25 tanks and 30 stock troughs on his property. Then with the help of a Roma-based water specialist he equipped the water meter with technology allowing it to send data, via two-way radio, back to his home computer and/or mobile phone.

The result: he now gets continuous water flow data reports that show the peaks and troughs of water usage along 30 km of pipeline. This regular and detailed data allows him to rapidly identify if there is a problem with leaks or blocked trough valves in the paddock.

But while this remote water monitoring system hasn't entirely replaced water runs on the property he operates with his wife Geraldine Grant, it has given him 'invaluable peace of mind' and saved him both time and money.

"We are still out cleaning troughs and checking stock, and when the data indicates there is a problem we still need to drive around to locate it," Mr Banks said.

"But the system has definitely saved us from having to do some daily water runs, which used to equate to around an hour a day labour-wise, plus fuel and vehicle maintenance costs."

The remote water meter monitoring system is the second phase of a move to take advantage of technology to reduce labour and time costs on Dunwold.

A decade ago Mr Banks introduced remote cameras on water troughs, that like the water meter system were solar powered and communicated data via two-way radio, so they could be monitored from a computer or mobile phone at the homestead.

Water troughs on Duncan Bank's property are monitored by remote, mobile cameras as well as a water meter, which transmits data back to a computer or mobile phone charting water usage.

"We still have three cameras in use and two are mobile (the other is attached to the water meter and looks at a trough) so we can move them from trough to trough," he explained.

"They have been handy in terms of being able to physically see there is actual water in the trough and to watch stock are accessing watering points, or to check if it's raining out in specific paddocks.

"But in all honesty, once you adjust to the fact you can't 'see' the troughs the water meter system has proved more effective, because it monitors the main pipeline to 30 water troughs and the data is sent in so regularly and in such detail, that you can tell as soon as there is a variation in flow.

"If water flow increases it's likely you have a leak, if it reduces it is possible there is a valve blocked somewhere, so you can check it at the house and have a reasonable idea of what is happening in the paddock.

"Unfortunately, I've yet to figure out a way to get the system to tell me exactly where the problem is, but technology is improving all the time so who knows one day soon it could.

"When you do have a problem, it becomes a matter of isolating its location and you can only do that by physically heading out and doing checks at troughs.

"The water data flow coming in is specific enough that I know if the neighbour is filling up his spray rig from the bore. In summer I might check the system three times a day, in winter I might check it weekly and if it rains I don't check it at all."

He said funding for the initial remote cameras to monitor water points came from a Landcare grant and the cameras were set up to take photos at morning, noon and night and feed them back into the home computer or mobile phone.

"Now the water meter has really superseded the camera system, it monitors the whole system and once you get your head around not having visual footage it's a much better bit of kit and I wouldn't hesitate to recommend it."

Mr Banks said the water meter gear was sold under the Observant brand and has proved robust and reliable in the environmental conditions.

The initial three cameras and base unit cost approximately $10,000.

"The water meter costs around $1000 and is very similar to the ones on urban homes, the gear that communicates the data from the meter via two way back to the house is one of the original camera units," Mr Banks explained.

The units have a 30cm x 30cm heavy duty solar panel powering the water meter and a two-way radio system.

"We have been paying an ongoing cost of $750 yearly from Observant for the communication technology to be hooked into the internet via our modem in the house.

"In our situation we were able to set up this system through Next G with an extension aerial and this connection costs approximately $420 per year for my three cameras and one water meter."

Mr Duncan said his supplier was currently selling the Observant monitoring gear at around $3200 for the radio and camera unit, while a radio and water meter unit was $3400 and the reporting unit (to communicate the camera and water meter data back to the home computer or mobile phone) was around $2400.

The remote water monitoring system is powered by solar panels

Alternatively he said producers could invest in a stand-alone Next G unit with a water meter for around $2600 or a camera for $2400.

"It is expensive, but in terms of cost savings from reduced vehicle use and labour the technology would have paid for itself within five years, and in saying that it has given me a greater peace of mind and that's priceless."

Mr Banks said the system was accessible beyond Dunwold, meaning he could check the water meter and the remote cameras positioned on troughs via his mobile phone from anywhere in the world.

"I definitely have a look at it if we're on holiday at the coast, I can't help myself and if someone says it's raining while we're away I'm straight onto the phone to check out the latest images from our remote cameras.

“While I might joke about it a bit, that fact is it is practical technology that saves time and money, particularly in an operation like ours where it is only Geraldine and I handling the day-to-day running of the property.

“If we’re shearing and I can’t make it out to check troughs, thanks to the water meter data I am reassured that the stock have water.”

Embracing new technology is a critical part of increasingly cost-effective, on-property operations according to Mr Banks.

He is now investigating a similar remote monitoring system for the 120 km of electric fencing that runs along the boundary and throughout Dunwold.

“We have fenced 17 km of our boundary with a Weston eight wire 1.5 m fence, which is effective at keeping out wild dogs and roos, we only have 9 km to go and then we are done,” Mr Banks said.

“We have electric fencing running as part of that too and I have been investigating remote monitoring systems for that as well, that work on the same principle and transmit data back to the house.”

He believes that for producers to remain cost-effective, even with the current buoyant wool market and good seasons they need to be considering labour and cost savings measures that can produce management gains.

“I have faith in the wool industry, particularly the fine wool industry which is where we are, I think our sector ticks all the boxes in terms of sustainable, renewable and being good for the land as well as the consumer.”