A NEW DEVICE LETS FARMERS MONITOR TANKS FROM THEIR SMART PHONE

WATER WATCH

BY COLIN TAYLOR

BEYOND the farm gate – and, increasingly, inside it – technology is jostling tirelessly to rewrite how we do our work and fill our days.

Mind-boggling advances in telemetry, shared data, sensor and camera technology mean farmers can remotely monitor so many parts of their business thanks to the Internet of Things – a system where our physical world is linked to the worldwide web via sensors.

The IoT is exploding, with 50 billion internet-connected devices projected to be active globally by next year.

And agriculture is catching on.

Agricultural technology, or agtech, is booming, with innovative products, pitch events, competitions and start-ups mushrooming worldwide. According to Austrade, global investment in agtech in 2017 totalled $14.6 billion, up nearly 30 per cent from 2016.

The sector embraces everything from farm management software, robotics, bioenergy and biotechnology to e-groceries, innovative food, 3D food printers and smart kitchen appliances.

Lest anyone think we've become totally enslaved by this wizardry, it should be remembered that many on-farm decisions happen well away from a computer screen – on the tractor, in the paddock or at the yards.

Australia, too, is playing catch-up in this area, thanks to a far smaller pool of venture capital – investment in agtech per capita in Australia is 50 times less than that of the US – plus the geographic realities of our continent's vast unpopulated and remote areas.

Despite those limitations, livestock producers are using technology to monitor their stock, water and fences while grain and fruit growers plan optimal times for nutrient delivery, harvest and irrigation.

Farmers can remotely monitor vehicles via GPS and know when their next service is due; drones look at pasture biomass and tree-based carbon and even weigh animals remotely while Gallagher has unveiled its "virtual fencing", eShepherd. Others have installed remotely operated gates for managing rotational grazing, soil

moisture sensors and pumps that can be turned on and off via a smart phone.

One start-up, rooted in down-to-earth life experience, is Sydney-based Farmbot.

It produces an Australian-designed and built, solar-powered water monitoring device – immune to assaults from wind, temperature, livestock or wild bird – which allows farmers access to real-time data about their water levels and water consumption trends.

Using satellite connectivity and 3G/4G technology, Farmbot monitors work anywhere, can be set up by the purchaser in 10 minutes and do not require a typical cellular signal.

They allow users to monitor water levels in stock tanks, dams, turkey's nests and irrigation channels in real time, understand their water consumption trends and receive SMS and email alerts if there is a fault or leak.

There are 1500 Farmbot units in use on 480 properties across the country and more than 200 sold a month.

Units are operating on livestock and cropping properties from West Australian desert country to deep in Tasmania.

Managing director Andrew Coppin said the company was founded in Sydney in 2014 by chief operating officer and software engineer Craig Hendricks, who wanted to remotely check water supplies for the cattle, vines and truffles on his Southern Highlands farm.

"I grew up on cattle stations in the Kimberley in Western Australia and I've never met a farmer whose first thoughts each morning weren't on the weather and their water," Mr Coppin said. "They probably know exactly how much diesel they've got, how many animals, their employee numbers and how much fertiliser, but what of their water?

"We have customers waking each day and checking up to 50 water tanks across multiple properties before they've finished their cup of tea. Someone could be on holidays in Hawaii and still be checking his home water supplies daily.

"A lot of current technology might just ping you once a day, but what if a pipe bursts 15 minutes later in a paddock with 30 cattle on a 38-degree day? Then, if you miss the report the next day, you might have 30 cattle dead.

"We don't need to send technicians, pour concrete and set up towers – we simply mail out a kit, the customer sets it up on his tank, throws in the sensor and turns it on."

Farmbot is working on new developments in water pressure, channel flow, rainfall measurement and water quality, with future plans including trough cameras and remote pump activation.

FARMBOT IS PRICED FROM $900 (+GST), WITH AN ONGOING ANNUAL AVERAGE SERVICE CHARGE OF $400.

DETAILS: FARMBOT.COM.AU

Alerts: Farmbot delivers real-time data about water levels and water consumption. (Top) Andrew Coppin.

REMOTE CONTROL

TODMORDEN Station, in the far north of South Australia, has invested heavily in remote sensing technology and is now reaping the benefits.

Located 82km northwest of Oodnadatta, the property has been leased by the Lillecrapp family since 1962 and is managed by Douglas Lillecrapp with his father and sister.

"I run a commercial beef breeding herd of about 4000 cows," he said. "About 50 per cent of the water we use on the station is from the Great Artesian Basin aquifer, with the rest coming from 60 dams and natural short-term waterholes.

"I'd always been interested in remote sensing to monitor water – normally, during the summer, you might need to check bores every second day to weekly and this property is 7100sq km, with the furthest bore 90km from the homestead.

"A one-day water run could potentially mean driving 300-400km and that's a significant cost in terms of time, fuel and vehicle wear and tear."

Todmorden Station has an average rainfall of 175mm, which is highly variable, so cattle are watered mostly from 40-odd bores under solar-powered pumping systems spread across the property's 32 paddocks.

"I currently have 27 tank-mounted Farmbot units and am about to order another 12," Mr Lillecrapp said.

Since installing Farmbot, station management has been able to respond quickly to several out-of-character drops in tank water levels.

"Using remote sensing to monitor water levels on grazing stations is a no-brainer," he said. "It provides convenience, cost savings, a higher level of security and peace of mind, especially during the summer."