

High-tech yards

Embracing new technology has helped Thompson Longhorn become one of the most recognised names in Australia's rural manufacturing sector.

By Nathan Dyer

On the outskirts of Queensland's fertile Darling Downs farming district, mechanical engineer Byron Wolff walks across a factory floor towards a paint shop humming with the sound of large extraction fans. Inside, the final touches are being applied to one of Thompson Longhorn's state-of-the-art cattle restrainers, the distinctive longhorn logo taking centreplace across the top of the large blue piece of equipment.

As he watches the spray painting, Byron explains the benefits of the newly installed paint shop. "It's allowed us to use industrial two-pack paint technology," he says. "And that gives us better corrosion protection on finished products." It's one of many innovations the 41-year-old has introduced since taking the reigns of the family-owned manufacturing company in 2007.

With its factory located at Goomburra, about 70 km south east of Toowoomba, Thompson Longhorn has pioneered automated livestock handling equipment, building a reputation both domestically and internationally for its high-tech designs.

The company supplies equipment to clients across Australia, has exported to countries including Canada, Kazakhstan, Qatar, United Arab Emirates and New Zealand, and was the first in the industry to offer computer-controlled livestock drafting. "You bring an animal into one of our systems and it will automatically weigh it, scan its RFID (Radio Frequency Identification Device), open the correct gate, let the animal go and reset and wait for the next animal," says Byron, walking back to his office from the factory floor.

Having tripled the size of the business in the past decade

» It's difficult to keep manufacturing in Australia, but we're based in a rural environment, we employ rural people. «

Byron Wolff

and grown the factory workforce to 20 full-time staff, Byron says research, development and investment are the keys to a successful rural manufacturing company. "We probably reinvest about 50 per cent of profits each year back into improving our products," he says. Along with a dedicated design team, robotic welders and the use of drones for aerial



- 1 A set of Thompson Longhorn yards stands out against the Pilbara backdrop of Minderoo Station, near Onslow, Western Australia.
- 2 Thompson Longhorn owner Byron Wolff.
- 3 The seven axis robotic arms of the dual robotic welding facility at the company's factory in Goomburra.

survey work have helped drive significant productivity gains.

"We've been using drones to do site survey work for about three years now," explains Byron. "We'll go to a site with existing infrastructure and fly the drone, take some images directly over the site, then scale that imagery and feed it into CAD (computer-aided design) so the customer can see how new improvements integrate with their existing facilities."

Byron says using technology such as drones is crucial when servicing remote clients. "We've got engineering backgrounds here so the plans make sense to us, but we know if you're not dealing with these things everyday you need to be able to visualise them."

At a time when many of the country's larger city-based manufacturing businesses are struggling to survive, Byron says his factory's relatively remote location, an hour's drive



4



5

- 4 Thompson Longhorn's innovative yards designs have earned a reputation across the Australian cattle industry.
- 5 A sign in the company's Darling Downs factory warns workers and visitors of robotic welders in action.
- 6 Worker John Coulstock installs a pneumatic cylinder in a weaner cradle.
- 7 Spray painter Rick Samin puts the finishing touches on a piece of equipment.

company's commitment to animal welfare is the driving force behind its industry-leading design work.

ANIMAL WELFARE FOCUS

"All of our designs have animal welfare as one of the key criteria, because if we can keep animals comfortable and safe, and not in any sort of fear, and if we can remove the human animal interaction as much as possible, then the whole day goes a lot easier," he explains. "By automating a process you can operate with fewer people, but with more controlled behavior from those people, so things are done in a more ordered and controlled way, and that places less stress on the livestock."

With Australian cattle prices booming, Byron says more companies are reinvesting in their operations, with expansions in all sectors of the industry. After more than two decades of involvement in manufacturing Byron's more positive than ever.

"It's a great time to be part of the industry," he says. ■



6



7



INTERNATIONAL NOTES



CHILE

Pedro Heller, owner of the Chilean dairy farm El Risquillo, is convinced that improved animal welfare positively affects the amount of milk produced by his cows. Since 2014, 920 of a total of 6,500 animals have been milked using a fully-automated system. On average, the cows visit the milking robots 2.9 times per day. Since then, Heller has observed a 10% production increase, which is currently 45.2 l/cow/day. He attributes this mainly to the cows' reduced stress. Competition between the animals is less pronounced than in the milking parlour and this is especially beneficial to young cows during their first lactation. He plans to upgrade to a total of 64 Delaval milking robots and to milk 4,500 cows. This will make El Risquillo the largest milking robot farm in the world. The farm will, however, retain a conventional milking carousel and a herringbone milking parlour in which cows will be milked during the first 30 days of their lactation, as well as cows with an udder shape that does not permit milking with a robot. Further measures for improving the animals' welfare include cooling systems, rubber floor coverings and vibrating brushes. ■



SOUTH AFRICA

The Vergenoegd Wine Estate in Stellenbosch, South Africa, is serious about integrated plant protection – it uses ducks for pest control. For the past 30 years, the 57 hectare wine estate has been rearing ducks and shepherding them daily into the vineyard. "Our Indian Runner ducks can eat 6 hectares clean in just one week", says winemaker Marlize Jacobs. Snails are a delicacy for poultry and they also eat mealy bug larvae from fallen leaves. "During the past five years, we have hardly needed to use any pesticides and, when we did, it was only a small quantity during a severe snail infestation. The ducks also fertilise the vineyard and hence we need less nitrogen." As Jacobs also explains, this method is profitable only because their customers are willing to pay a higher price for wine that has been produced in an eco-friendly manner. The daily duck parade also entices thousands of visitors to the wine estate, which also offers hospitality and direct sales. The costs are up to seven times higher than with conventional plant protection. "The ducks eat large amounts of corn and the breeding costs are enormous. We even keep a herd book." ■



UNITED STATES

Researchers at Montana State University's (MSU) plant pathology department developed a cost-efficient method for soil analysis. Seed-dotted strips of biodegradable paper are planted in a field and 10 to 20 days later they will reveal what nutrients are deficient. If plants grow strong and healthy, nutrients are not a limiting factor for production. If plants sprout but yellow, wilt, or die, something is missing. These indicator seeds are mutant barley plants. Each carefully selected plant is not very good at pulling specific nutrients from the soil. If there is plenty of the nutrient, it will do fine. But, if a nutrient is in short supply, the plant will struggle. Each seed strip tests for an individual nutrient. Of 14 key nutrients needed for plant growth, the MSU team has isolated barley mutants to evaluate nine – nitrogen, phosphorus, sulphur, calcium, zinc, boron, selenium, copper and molybdenum. They are working on indicators for potassium, magnesium, iron, cobalt and manganese. Cost is far from the only advantage, since the tests show plant-available nutrients in the soil. Traditional chemical soil analysis may reveal how much of a nutrient is in the soil, but not if it is truly available to the plant. ■