IMPROVING EFFICIENCY AND OVERSIGHT OF FARM OPERATIONS WITH NEW TECHNOLOGIES

Systems and solutions that manage agricultural activities have been instrumental in helping Australian farmers to improve productivity, increase operating efficiency and reduce costs. Across Australia, producers are embracing technologies such as global positioning systems and farm management software that utilise the Internet of Things technology to manage livestock and crop production, harvesting, irrigation and record-keeping. The widespread use of technology across the Australian agricultural sector has created an environment where agtech firms can find the infrastructure, talent, customers, partners and investors to grow their business. Australia offers opportunities for organisations of all sizes, from scaleups seeking their first international market to trial and enhance their solutions to multinational corporations looking to source, collaborate and/or develop agtech solutions. Cisco and KPMG are just two multinationals that have built a strong agtech practice in Australia and established their global agriculture and/or agtech headquarters here.

A country that embraces innovation

With one of the lowest agricultural subsidies in the world, Australia has long relied on new technologies to increase yields, improve farm management and drive efficiency. Australian farmers’ adoption of cutting-edge agtech has contributed to the agricultural sector’s average productivity growth rate of two per cent per annum over the past decade. ‘There’s no better place for agtech innovation than the diverse microclimates of Australia. With one of the most open and challenging agricultural industries in the world, our growers must innovate to remain competitive.’ – Ros Harvey, Founder and Managing Director, The Yield.

To cater to this tech-savvy market, long-established organisations and startups alike are developing farm management and input or irrigation management solutions for all types of environments, including aquaculture, crops, horticulture and livestock.

Australian companies such as AgDNA, Agersens, AgriWebb, AgWorld, Automed, CeresTag, FluroSat, Maia Technology, Observant, Rubicon, Swan Systems and The Yield are drawing on their first-hand experience to develop solutions that address everyday issues that producers face.
It is an exciting time as so many new technologies are being developed to meet the challenges we’ll face in the future, not just on the farm but along the entire food supply chain,” says Harvey.

Globally relevant solutions

Thanks to variations in soil type, climate and commodities, organisations can effortlessly develop solutions in Australia that are relevant to markets across the world.

An example is The Yield, which developed a microclimate sensing solution, Sensing+ for Agriculture.

The Yield designed its on-farm hardware which is manufactured by Bosch to measure microclimate weather and growing conditions. The data recorded by the sensors is converted into a seven-day forecast using artificial intelligence and predictive models. By combining multiple data points with analytics, the technology delivers insights that enable users to make faster and more informed decisions about when to plant, irrigate, protect, feed and harvest their crops.

The Yield’s technology has been certified in the United States and the company is planning to enter the American market. The company has also been granted global patent protection for technology that predicts a local environmental weather condition or point from gridded weather data, assisted by artificial intelligence.

‘Our international partners always comment on the high level of collaboration and innovation they see coming out of Australia. Australia’s ecosystem is supported by initiatives like the Cooperative Research Centre (CRC) Program, including the Food Agility CRC, and our Rural Research and Development Corporation network. These bring together government, the research community and industry to help our research and development efforts for industry and community.’– Ros Harvey, Founder and Managing Director, The Yield.

The Yield’s pioneering technology has been noticed on the world stage. In 2019, Harvey was invited to brief the Food and Agriculture Organization of the United Nations (FAO), the World Bank and the European Bank of Reconstruction and Development on applying digital technologies to develop food systems. The panel also discussed how digital agriculture could contribute to the FAO’s future strategies.

‘We’re excited about growing into new markets and helping more growers on more farms around the world,’ says Harvey.
The domestic market is also a source of funds, which helped AgriWebb grow its business in the company’s early days. AgriWebb offers farm management software that digitises livestock recordkeeping, while also storing audit and compliance data. The platform enables farmers to improve their productivity and farm management capabilities. AgriWebb’s software has grown from a tablet app just five years ago, to become a market leader in the livestock industry in Australia, the UK, South Africa and Brazil.

‘Early investment came from the Australian believers, who themselves were innovative farmers, early adopters of the product and others who had a real belief and support for the agricultural technology community,’ says Justin Webb, Co-founder and Chair of AgriWebb.

In 2018, AgriWebb received A$14 million investment from well-regarded UK-based agricultural investment firm, Wheatsheaf Group.

‘At Wheatsheaf we take an innovation-led approach to identifying, investing in and helping to develop product or service-led companies that have the potential to make a material difference in improving the efficiency of food production,’ says Anthony James, COO of the Wheatsheaf Group.

“We see AgriWebb as a global leader in farm management technology and look forward to working with the AgriWebb team to further our mutual goals of improving livestock production around the world.”

- Anthony James, COO, Wheatsheaf Group.

Government support

Australian governments at all levels are investing in infrastructure and programs to support the adoption, trialling and development of farm management solutions.

Geoscience Australia, a national agency specialising in geoscientific research, is tasked with leading the adoption of location-based technology across a wide range of agricultural applications.

The agency is leading a program to provide a coordinated national Global Navigation Satellite Systems (GNSS) network and develop an Australian Satellite-Based Augmentation System (SBAS). The two complementary projects will combine industry-leading ground-tracking infrastructure to improve satellite positioning accuracy.

Investment drives innovation

Australia’s venture capital market has expanded substantially in recent years, doubling in total size from 2016 to 2017. There were 51 agtech investments in 2017. There are plenty of opportunities for international investment, due to a rising number of seed-stage companies seeking funding. In 2018, the first specialist agtech venture firm, Tenacious Ventures, launched in Australia.

Local and international investment has propelled the development of agtech solutions. The Yield undertook a successful Series A capital raise in April 2017, with backing from lead investor Bosch, KPMG and global investment marketplace AgFunder. The Yield has also partnered with Microsoft and was recognised as a top-performing partner globally in the Internet of Things category in 2017. The company is featured in a global Microsoft advertising campaign about the power of artificial intelligence.

‘The value we gain from partnering with these organisations is beyond simply investment; we have partnerships with major international players that can share their deep knowledge of the industry and geographic markets,’ says Harvey.

AgriWebb’s farm management software digitises livestock recordkeeping and stores audit and compliance data, enabling farmers to improve their productivity and farm management capabilities.
Establishing the necessary ground infrastructure will enable data from global constellations of satellites to be tracked, verified and optimised for precise positioning down to three centimetres across Australia in areas with mobile coverage. The project capitalises on Australia’s geographical advantage as one of the few countries in the world with high visibility to six GNSS.

Once operational, the Australian SBAS will augment GNSS signals to set a new benchmark in positional accuracy. An SBAS will overcome current gaps in mobile and radio communications and provide a positioning accuracy of ten centimetres without the need for mobile coverage.

‘A key part of the program is providing 10-centimetre open-source positioning, which will potentially become miniaturised and smartphone accessible,’ says Dr John Dawson, Section Leader, Positioning, National Positioning, Infrastructure Branch Positioning and Community Safety Division at Geoscience Australia. ‘We have been running a two-year testbed – mapping vineyards, virtual fencing and livestock tracking, autonomous tractors and drone spraying and spreading.

‘There are opportunities for the industry to exploit miniaturisation technology into something like an ear-tag that can not only be rolled out in cattle but also other livestock industries such as sheep.’ – Dr John Dawson, Section Leader, Positioning, National Positioning, Infrastructure Branch Positioning and Community Safety Division at Geoscience Australia.

Australia’s supportive ecosystem of agtech investors, researchers, entrepreneurs and farmers provides international investors and agtech firms with the ideal environment to research, develop, test and commercialise agricultural technology.

Watch a video on why Australia is a compelling destination for agtech and foodtech innovation.

Visit www.austrade.gov.au/agriculture40 for more information on Australia’s agtech and foodtech sector and discover how Austrade can help you and your business connect with Australia.

For more information about Austrade’s services, contact: T 13 28 78 E info@austrade.gov.au

1. The United States Studies Centre at the University of Sydney, Australian agtech: Opportunities and challenges as seen from a US venture capital perspective, October 2018

2. Wheatsheaf Group, Wheatsheaf Group invests in Australian company AgriWebb to transform the future of digital agriculture, August 2018

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