



**Legislative Assembly Committee on Investment, Industry and Regional  
Development inquiry into technology and the agriculture and mining sectors**

**Public hearing Wednesday 27 July 2022**

**Opening Statement from Charles Sturt University**

Charles Sturt University welcomes this opportunity to provide evidence to the New South Wales Legislative Assembly Committee on Investment, Industry and Regional Development inquiry into technology and the agriculture and mining sectors. We are also grateful to the Committee for taking the time to visit the University's Wagga Wagga campus on 28 June 2022.

Charles Sturt is Australia's largest regional university, with more than 43,000 students and approximately 2,000 full time equivalent staff. We are a unique multi-campus institution based in some of New South Wales' most vibrant regional communities. We have campuses in Albury-Wodonga, Bathurst, Dubbo, Goulburn, Orange, Port Macquarie and Wagga Wagga, all with strong connections to surrounding rural and remote communities.

Our footprint extends across most of NSW's agricultural regions, and we have a long and proud track record in meeting the education, training, and research needs of regional students, communities, and employers. The new University Strategy 2030 builds on these foundations, with a focus on connecting our students with the knowledge and wisdom to shape the world; collaborating with our partners, including industry partners, on research with impact; supporting, empowering, and inspiring our staff and students; and engaging regionally and globally to drive sustainable prosperity.

Charles Sturt's history in agriculture education, research, and innovation extends back almost 130 years, to the establishment of the Wagga Wagga Experimental Farm. Charles Sturt is now the largest regional university training the future agricultural, environment and veterinary workforce. At present there are more than 1600 students in agriculture and environmental sciences and almost 700 students in veterinary and animal sciences at the University. Combined, they make up around five per cent of total enrolments, and according to Department of Education data Charles Sturt University trains more than 10% of the country's vets and about a quarter of Australian agriculture students and graduates. As around 75% of Charles Sturt graduates go on to work in regional areas, our contribution to the regional workforce in these fields is even more significant.

In recent years, Charles Sturt University has made significant investments in new facilities to boost participation, grow our research, and deepen our relationship with regional communities. These include our new School of Rural Medicine in Orange, a rapidly-expanding campus in Port Macquarie, a new IT and cyber security institute in Bathurst, and the Gulbali Institute for Agriculture, Water and the Environment in Wagga Wagga, opened in March 2022. We have established partnerships with local employers including regional health services, with national and international firms such as IBM, Transgrid, John Deere and Marathon Health, and with government agencies including the NSW Department of Primary Industries, CSIRO and the Department of Agriculture, Forestry and Fisheries (DAFF).

Two recent initiatives, both relevant to this inquiry, offer an example of the University's commitment to industry-aligned education and impactful research. These are the Southern NSW Drought Resilience Adoption and Innovation Hub, established in 2021, and a new Biosecurity Training Centre (BTC), which accepted its first intake of students this month. Both funded by DAFF.

The Hub is a consortium of nine regional partners including primary producers, Indigenous, industry and community groups, researchers, entrepreneurs, education institutions, resource management practitioners and government agencies. The Hub is a physical and virtual locus for user-driven innovation, research and adoption that facilitates transformational change through the co-design of a range of activities including R&D, research commercialisation and extension services.

The BTC will draw on the University's experience, infrastructure and research, as well as our sector-leading expertise in online education, to strengthen Australia's biosecurity capability by provide training to biosecurity officers across the nation. The Centre will offer residential programs in Wagga Wagga and mixed mode instruction in satellite training facilities in state capitals to build a future ready, skilled and agile biosecurity workforce for Australia and neighbouring countries.

The Southern NSW Drought Resilience Adoption and Innovation Hub and the BTC are linked to and supported by the University's AgriPark (see below).

Our experience, industry and community connections, and globally recognised research strengths mean Charles Sturt University is uniquely placed to comment on the growing importance of technology in the agricultural sector, the opportunities and challenges this presents for regional NSW, and their impact on the future workforce in this vital industry.

During their visit to the Wagga Wagga campus Committee members saw first-hand the excellent teaching and research facilities at Charles Sturt. These include labs rated for research in genetically modified organisms; greenhouses and growth chambers providing full control over temperature, water and other conditions; the largest purpose-built facility in the Southern Hemisphere for studying root development (the Rhizolysimeter); and of course the University's 1600 hectare farm. Together, these facilities afford students and researchers in agriculture, horticulture, viticulture and animal health and sciences an opportunity for hands-on experience unmatched by any other university in Australia.

The University farm and its virtual twin, the Global Digital Farm, provide a test-bed for new technologies such as [Zetifi](#), a 'last mile' connectivity solution for farmers developed at Charles Sturt with funding from the University's technology accelerator program. Zetifi and other agricultural technologies were on display at the [Digital AgriFood Summit](#) held on the Wagga Wagga campus (and online) on 1-2 June 2022. The highly successful event was co-sponsored by Charles Sturt and the [Food Agility Cooperative Research Centre](#). The Summit hosted more than 400 in-person and 100 on-line participants from around Australia and from overseas, including a trade delegation from India.

The latest in a series of industry-oriented events, the Digital Agrifood Summit has helped to establish Charles Sturt and Wagga Wagga as the epicentre of Australian innovation in digital agrifood technologies that drive more innovative, sustainable practices among Australian farmers. As a high-profile event with an international reach it will also attract new technology collaborations, skilled workers and leading academics to the region. Summit attendees heard presentations on the road to hands-free agriculture, the potential use of virtual and augmented reality, the emerging circular economy, and the carbon economy – all of which depend on the development, extension and uptake of technology. Attendees also listened to discussion of key issues facing the agriculture sector, heard presentations from industry innovators like Bega, and saw demonstrations of drones for precision spraying, sensors for orchards and aquaculture, remote sensing technologies and AI, new methods for disease detection in livestock and food crops, and the many ways farm productivity, profitability and sustainability can be boosted by the use of the full range of data available to farmers.

Many of the exhibitors at the Digital Agrifood Summit are tenants at Charles Sturt University's Agrisciences Research and Business Park (AgriPark). The AgriPark is at the heart of the University's future plans, particularly for our Wagga Wagga campus, and is well aligned to NSW and Australian Government's goals for the agriculture and fisheries industries, the food and beverage manufacturing sectors, and for regional economic development focused on productivity, sustainability and shared prosperity.



The AgriPark is a unique ecosystem that accelerates innovation in agriculture through collaboration between industry and researchers. It supports national goals to increase collaboration, boost innovation and productivity, develop new technologies and new industries, and bolster the skills of the agricultural and regional workforces. The AgriPark will help achieve the National Farmers Federation goal of building Australian agriculture to a \$100 billion industry by 2030, a goal endorsed by both the ALP and the Coalition before the recent federal election.

To date Charles Sturt has invested more than \$10 million in the AgriPark, which now hosts 18 industry and government tenants and more than 120 staff representing the full range of agriculture and regional investment sectors (government, industry and entrepreneurial). Key existing partners include AgriFutures Australia, ChemCert Australia, Regional Development Australia, Eurofins Agrosience Services, Riverina Local Land Services, Syngenta Seedcare Institute, Genetic Hub and Hutcheon & Pearce.

The University has well-developed plans to expand the AgriPark to accommodate at least 30 organisations and over 200 staff by 2025. A key part of the next phase of development of the AgriPark is the construction of a new building with state-of-the-art research and development facilities and shared office spaces. Bringing all the AgriPark tenants together into a single facility will drive greater collaboration and afford better access to University facilities including labs, libraries, and the Global Digital Farm. The University is seeking investment from the NSW and Australian Governments to realise this vision, and to drive the development and uptake of new technologies for the agricultural sector and other industries.

During the meeting with regional businesses on 28 June Committee members heard a range of views about the opportunities offered by new technologies in agriculture and mining, and some of the challenges they bring. Two issues came to the fore in that discussion.

Many participants spoke about the current and potential impact of data – how to collect it, how to analyse it, and how to apply it. Farmers, suppliers, agricultural technology companies, government agencies and education and research institutions all have a role to play in this sphere, and in particular in improving data literacy across the sector. The NSW Farmers' Association submission to this inquiry acknowledges the importance of digital literacy and notes that "advanced use of data and technology in business models will continue to require additional training and upskilling". The NSWFA also observes, however, that cost and time are significant barriers for many producers seeking to develop their data skills. There is a clear role for universities in helping to address this problem, and indeed it is in response to industry needs that Charles Sturt University is in the process of developing a suite of short courses and microcredentials in data science and analytics. Later in 2022 we will begin offering courses in the use of common tools like Excel and MYSQL, in database development and management, in data analytics and visualisation, and, for the more ambitious, in programming. These short courses will be available at a relatively lower cost and involve flexible delivery suitable for those in the workforce. The courses can be tailored to meet the needs of specific industries or employers but in the main will be focused on providing skills that can be used in a range of settings.

A related issue, and one that has come up in many inquiries and consultations on regional education and economic development, is the poor connectivity in many regional areas. Industry participants at the roundtable identified poor connectivity as the top challenge to technology uptake and to attracting suitably qualified staff. Slow or unreliable internet and mobile phone services place regional residents and businesses at a disadvantage, as they are unable to make best use of the new technologies or services. Poor connectivity also inhibits the development of even the basic digital skills needed to function in the modern world, with evidence showing students in the Riverina have the lowest level of digital literacy in the state. The importance of improving connectivity in regional areas is acknowledged in the NSW Farmers' Association and NSW Government submissions to this inquiry, and recent NSW Government investments in initiatives like the Connectivity Innovation Network are a good start at dealing with this problem. This needs to be matched, however, by other government and industry investment in digital infrastructure: an essential step if the full potential of new technologies in agriculture and mining is to be realised.

