



Centre for
Entrepreneurial
Agri-Technology



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Securing the future of Australia's agri-food sector
through innovation



An ANU Innovation Institute

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Our Mission

The Centre for Entrepreneurial Agri-Technology (CEAT) is driven by the desire to build an innovation ecosystem where world-class research and technology is used to target agricultural challenges, independent of traditional disciplinary boundaries.

We build partnerships and capability to enable researchers, industry, government and end-users to collaborate and innovate.

CEAT was established from a desire to change the way we approach innovation in the agri-food sector.

The challenges facing Australian agriculture are immense and pressing. It is clear that incremental change in the way we produce food will not be enough to mitigate the worst effects of climate change or to adapt to warmer, more variable and extreme weather patterns.

While simultaneously adapting to these more difficult climatic conditions, the agricultural sector is pursuing an increase in Australia's annual farm gate output from \$81 billion in 2021-22 to \$100 billion by 2030. Sustaining increases in output will require a three- to six-fold increase in the current rate of projected annual growth in Australia's agri-food output.

To achieve this growth, Australia's agri-food sector will need to harness our country's world-leading research and technical capabilities to deliver transformational change in crop breeding, livestock management and farm practices. We need to fast-track the development and rollout of technology to produce food in ways that

use less resources, protect the environment and meet consumer needs.

As an ANU Innovation Institute, CEAT is here to provide industry with a single point of access to the University's significant research and infrastructure capability. This includes excellence in science, technology, engineering and mathematics, as well as world-class research in social sciences, policy, economics and law. We bring together multi-disciplinary teams to translate research into real-world impact to build a more resilient and productive Australian agri-food sector.

If you would like to learn more about how CEAT could help you to co-design a solution to a problem you are facing, or turn an innovative idea into reality, the CEAT team are here to help.

Professor Owen Atkin

Director, Centre for Entrepreneurial Agri-Technology

Message from the CEAT Director



About CEAT

CEAT is at the heart of agri-food research and innovation in Canberra.

Located on the ANU campus in Canberra, and within walking distance to Australia's national science agency, CSIRO, CEAT provides the agri-food sector with unique streamlined access to the University's world-leading research excellence, capability and capacity. Achieving the transformational change needed to prepare the Australian agri-food sector for 2030 and beyond will require researchers and industry to work together to co-define problems and co-design solutions. CEAT personalises the R&D pathway for each client, employing co-design principles to develop tailored research approaches. ANU has established CEAT to support the University community to adopt more agile thinking and practices, and to better translate its research into real-world impact.



We bring together
interdisciplinary
teams to solve
real-world problems.



ANU expertise

Agriculture: ANU researchers have expertise and interest in a diverse range of areas relevant to agriculture, including soils, animal production, climate, biosecurity, and agricultural systems. ANU Sustainable Farms is creating a sustainable future for Australian farmers by building on 20 years of agricultural research to better understand relationships between environmental management, mental health and financial success.

Biology: The Research School of Biology (RSB) is focused on the study of biological processes in plants, animals and humans. It is home to more than 60 academics and their research groups. The precinct includes plant growth facilities, animal housing and a pool of large equipment. RSB hosts the ANU node of the Australian Plant Phenomics

Facility, the ARC Training Centre for Future Crops Development, and the C4 rice project, with the capacity to address research questions arising from the cropping and alternative protein sectors.

Environment: The ANU Fenner School of Environment and Society is a world-leading centre for cross-disciplinary environmental and sustainability research and education, connecting science to practice and policy. Expertise within the School includes the effects of fire and climate, agricultural landscapes, hydrology, irrigation, crop pollination, soil science, biodiversity, forestry and grazing management. The Institute for Climate, Energy and Disaster Solutions works to advance innovative solutions to address climate change, energy system transitions and disasters.



Engineering: Research in the ANU School of Engineering encompasses materials and manufacturing, robotics, telecommunications, systems, and control of massively complex networks. ANU Makerspace is available to create prototypes.

Computer science: The School of Computing is a transformative centre for research in artificial intelligence and machine learning, computer systems and software, and theoretical foundations of computing. It spans traditional computer science and modern data and computational science.

Business and economics: Entrepreneurship and transformative innovation are among the research and education strengths of the College of Business and Economics.

Public policy: The Crawford School of Public Policy is the region's leading public policy school,

with outstanding research focused on Australia, the Asia-Pacific and beyond. Crawford School has a unique concentration of researchers concerned with integrity of public policy and governance systems. The College of Arts and Social Sciences brings expertise in policy and design thinking.

Science communication: The Centre for Public Awareness of Science conducts research into best practice for communicating science to the public, including issues such as emerging technologies and climate change.

Law: The ANU College of Law is nationally and internationally recognised for innovation and commitment to addressing the legal and governance challenges in realising a sustainable agri-food system. They can provide consultation, research and collaboration to assist in addressing agri-food system issues.



Medicago



Canadian pharmaceutical company Medicago developed a plant-based, recombinant technology system aimed at producing commercial quantities of vaccines for human use in just three weeks – much quicker than existing pre-mRNA vaccine technologies. ANU was approached by Medicago to collaborate in developing a new technology for optimising their plant processing.

CEAT facilitated the formation of an interdisciplinary project team at ANU, comprising our world-leading plant science researchers and technicians at the Australian Plant Phenomics Facility (APPF), and members of the world's foremost research team in 3D computer vision and machine learning from the School of Computing.

Providing ongoing project support throughout the 28-month project, CEAT became an integral connector between the industry partner and the ANU research team, contributing to: meeting structure and minuting; development of work packages; contracting; budgeting; and monitoring intellectual property developments.

Dr Marc-Andre D'Aoust, Medicago Vice President, Research & Innovation said: "The difference is in the structure of the interaction. We've had interactions with other universities, colleges, academies, and never observed this kind of structure. CEAT presents a product that is well-finished, and that's fantastic for us in this kind of interaction and partnership. They could really represent a team that covers a whole range of disciplines, and that brings a service to the partnership."

The CEAT Innovation Hub is a co-working space for local and international agri-food businesses looking to innovate and grow in the Australian market. We have office, lab and hot desk spaces available for businesses of all sizes, from start-ups to more established operations.

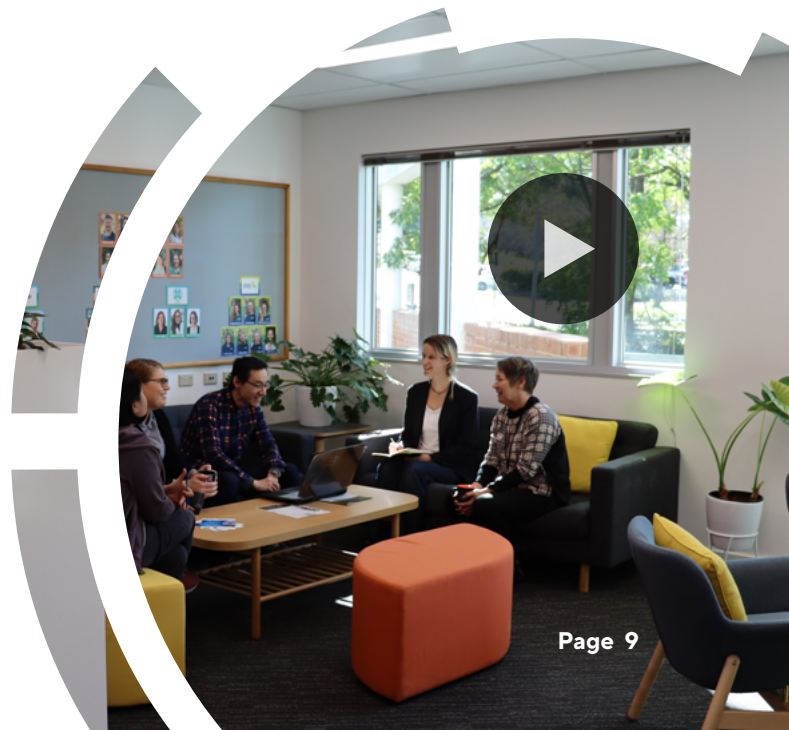
Hub members have a unique opportunity to undertake their R&D alongside Australia's best researchers, working together to secure funding, participate in knowledge exchange and build research impact.

Businesses benefit from being:

- co-located with the Australian National University's world-class researchers and state-of-the-art infrastructure and equipment, and in walking distance to CSIRO Black Mountain
- a member of a community of like-minded businesses, with access to conferences, workshops, delegations and networking events
- able to engage in professional training activities
- able to harness the talents of ANU students by engaging with interns, scholarships, placements and student projects
- able to engage in 'big picture' conversations occurring at ANU on topics including agri-sector policy, water futures, climate, circular economy, energy transition and space, and use their expertise and business capabilities to solve real-world problems.

CEAT Innovation Hub

The CEAT Innovation Hub is home to a vibrant agri-food community.





Debbie Saunders, Wildlife Drones

Wildlife Drones enables governments, environmental consultants, and conservation organisations to track animal movements using a drone sensor that is unique in the world. For founder Debbie Saunders, being able to manufacture and adapt prototypes of the business' technology in-house at the CEAT Hub and test them nearby has been invaluable. "It's really good being centrally located in Canberra. The location makes it easy for our team members to ride, walk or bus to work, rather than driving," Debbie says. "We also have

fantastic access to an ANU property to do flight testing. Every week we use the ANU facilities at Spring Valley to test all of our new developments and get systems ready for our clients. During our time at the CEAT Hub we've grown a lot. When we first started, we only just had our first investment round. Now we've had a couple of rounds of investment. When we started we had a prototype. Now we have a product that we're exporting to the United States and we're looking for funding to expand further into that market."

Stephen Trowell, PPB Technology

PPB Technology is an early stage start-up that uses biotechnology and high tech engineering to make food diagnostic tests for food processors to use on site. Founder Stephen Trowell says in the time the business has been at the CEAT Hub it's gone from a concept of making food testing simpler and easier, to an actual product in the final stages of market testing. "It's gone from the idea of a business to being a business," Stephen says. "It's been a complete transformation over the four years we've been here. It's just changed out of all recognition.

If I were to design the best place for us to be, it would be the CEAT Hub. It's a joy to come in here, it really is. It's a nice, easy environment to work in, with like-minded people and the location is fantastic. I'm originally from CSIRO and we're within walking distance of less than five minutes to my former colleagues, which makes it easier to collaborate. If you're a tech company, if you're at all in the food or agriculture space, I would say very likely this is the best place to be in Canberra; and, I would argue, it's one of the best places to be in Australia."



Agriculture at ANU

At ANU, we take a
fresh approach to
agricultural education.



To sustain and grow into the future, Australian agriculture will need to draw on a more diverse range of skills and ways of thinking. With workers from backgrounds including engineering, computer science, policy and social sciences, the agricultural workforce of the future will look very different to now.

At ANU, we bring students from a wide range of degrees together, attracting the non-traditional skills agriculture needs, and focusing on multidisciplinary approaches to complex challenges.

Our courses are designed to allow students to get hands on experience on commercial farms, work on real industry challenges, and be taught and mentored by industry experts throughout their study.

The ANU offers formal degree qualifications and practical experience.

CEAT supports delivery of a number of agricultural-focused programs in partnership with relevant Schools and Colleges.

- Master of Science in Agricultural Innovation
- Major in Agricultural Innovation for undergraduate students in science and environment bachelor programs
- Internships and student projects across a wide range of programs





We are working with industry to meet future skills and training needs.

CEAT is working with the agricultural industry to understand the key challenges and opportunities for Australian farmers and producers. We know the challenges the sector will face in the future are different to those of the past, and we need to equip the industry with a workforce with the skills

and knowledge to tackle them. We are supporting research into the agricultural workforce of the future to ensure we can shape our education and training programs to meet these needs. We offer bespoke training to organisations to upskill their staff in strategically important areas.

Paris Capell, Master of Science in Agricultural Innovation

The Master of Science in Agricultural Innovation at the ANU is the only degree of its kind in Australia. The degree equips students with a systemic understanding of farm and agri-food value-chains, and the skills to integrate and adapt knowledge from different disciplines to design solutions to complex agri-food challenges. Paris Capell was one of the first graduates of the new degree program at ANU. From an environmental science background, she chose the program

for its flexibility and interdisciplinary structure. "The degree has helped build a variety of experiences that I wouldn't have been able to have in any other degree," Paris says. "I really enjoyed being on the ground with producers, and being able to see some of what I'd studied with academics from a producer's perspective. Another awesome part of the degree is the connection to leading soil scientists; through that, I've been able to intern and be involved with different projects."



Get in touch

If you would like to find out more about how we can support your business' research and development needs, learn about joining our Hub community, or connect with ANU students, get in touch.

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