

Gatton Campus Development Plan 2018-2028



Context

Increasing agricultural production to meet the needs of a growing world population requires innovative, interdisciplinary approaches to sustainably provide sufficient food and water, without long term environmental degradation.

Major recommendations in the Australian Academy of Sciences Decadal Plan for Australian Agricultural Sciences (2017-2026)¹ relate to positioning the sector to take advantage of major scientific and technological advances related to research training and infrastructure.

UQ aspires to innovate, educate and partner in agriculture and veterinary science. Our goal is to improve the health and wellbeing of animals and plants, achieve pest resistance and management, enable food security and environmental sustainability, and develop the next generation of agriculture and veterinary science graduates. This will be achieved through strong linkages between the UQ St Lucia campus (discovery research and teaching) and the UQ Gatton campus (Translational research and teaching), and in strong partnership with industry, government and the local community

To achieve these goals, UQ has undertaken a significant investment strategy to redevelop the Gatton campus. To date this has included construction of a new veterinary teaching hospital and relocation of the School of Veterinary Science, the Queensland Animal Science Precinct (QASP), and refurbishment and extension of the J.K.Murray Library, along with significant refurbishment of existing teaching and research spaces. The UQ Solar Research Facility is an investment in research and delivery of renewable energy. Significant upgrades to the piggery is underway and establishment of fields for GMO cropping has recently been completed, with UQ partnering with a number of companies, industry bodies and government departments to achieve these infrastructure improvements.

UQ is now planning to leverage the above investment and recent successes in funding, including a \$35M ARC centre of Excellence in Plant Success in Nature and Agriculture, to embark on more development at the Gatton campus in partnership with interested stakeholders.

¹ www.science.org.au/support/analysis/decadal-plans-science/decadal-plan-agricultural-sciences-2017-2026; accessed 22/01/18

STAGE 1 – Completed

School of Veterinary Science relocation & Veterinary Teaching Hospital (VTH)



\$75M investment to consolidate veterinary science teaching and research at one location.

Queensland Animal Science Precinct (QASP)



Training, teaching, validation and commercialisation of animal research in collaborative with animal industries.

Gatton Solar Research Facility



UQ Solar initiative - a \$40.7M collaborative project to research and develop sustainable, clean energy.

J.K. Murray Library extension and refurbishment



Facilities for students to research, study, collaborate, and access support services.

GMO Field Cropping Facilities



2.5M to provide modern facilities and equipment to enable world leading field-based crop research. Facilitating national and international collaborative research partnering with industry and government and supporting field-scale GMO harvest trials.

Vision

Agricultural and veterinary knowledge leadership for a better world.

Mission

Through activities at the Gatton Campus, UQ will play a key role in training the next generation of veterinary science and agriculture game changing leaders, and work with industry and government to develop and deliver practical, sustainable, evidence-based solutions to global issues.

World-leading research, innovation, capabilities and teaching in veterinary, animal, plant, agriculture, environmental and food sciences at the Gatton campus, make an important contribution to the profitability and sustainability of Australian agricultural industries and the health and welfare of Australian wildlife, livestock and domestic animals.

Gatton campus encompasses more than 1,000 ha of highly productive land that provides capacity for strengths in research, teaching, training and practice, including research in large animals and a subtropical emphasis. Located less than an hour from a capital city, in the subtropical Lockyer Valley with \$370M in annual agricultural output, primarily vegetables and livestock.

STAGE 2 – Planning underway

Field & Plant
Science
research facility



Agtech
innovation space



Campus Hub:
multi-disciplinary
collaborative space
for students, staff and
visitors



Energy self-sufficient
& carbon neutrality



Piggery



Plant science facilities for teaching, translational research, and industry collaboration.

Upgrade field cropping from commercial farm to research facility to allow experimentation at field scale.

Attract start-ups and technology testing to foster new ideas.

Capitalise on rapid increase in Australian agtech investment.

Foster interaction and collaboration across campus.

Deliver services which enhance the student, staff and visitor experience.

Explore opportunities for energy creation using organic waste.

Pilot low and zero emissions fuel sources.

Explore agricultural coexistence with energy generation.

Revitalised facilities in partnership with industry leader that will increase opportunities for funded research in related agricultural innovation and provide students with work-integrated learning and enhanced career prospects.

Gatton Campus Development Plan

The Plan will support business development, financial sustainability and capacity building through:

- Ensuring infrastructure supports future growth
- Increasing engagement with alumni, industry and government
- Building local community relationships
- Optimising inter-campus access to build linkages

Addressing the Long-term objectives of UQ's Strategic Plan at the Gatton Campus

1. Transforming students into game-changing graduates who make outstanding contributions and address complex issues with a global perspective

Enrich the student learning and living experience by:

- Improving the student experience
- enriching student collaboration and partnerships,
- better preparing graduates for careers in industry and government

2. Globally significant solutions to challenges by generating new knowledge and partnered innovation

Deliver collaborative trans-disciplinary and partnered research outcomes that matter by:

- improving the bioeconomy
- forging strong industry and government linkages based on international best practice
- fostering innovation and technology transfer

STAGE 3 – Future possibilities

Multi-disciplinary infrastructure to support clinical and translational trials



Assist in facilitating collaborative research, building on the expertise, facilities and caseload at the VTH.

Digital connectedness across the campus



Develop, validate, analyse and report farm systems data for informed decision making.
Contribute to research capacity (soil, plant, animal, environment) and convert concepts to practice at scale ('real' environment).

Animal science teaching laboratories



Improve laboratory learning for undergraduate and post-graduate students, and boost research capacity.

Veterinary Teaching Hospital and clinical skills facility extension



Leverage facilities, research and engagement opportunities to position UQ as a leading provider of veterinary training and animal care.

PROPOSED RESEARCH FOCUS FOR THE GATTON CAMPUS

The Australian Academy of Science Decadal Plan for Australian Agricultural Sciences identified specific research frontiers and theme areas as major areas of focus and contributors to agriculture in the coming decade. The following table outlines areas where the UQ Gatton Campus can contribute to key research areas.

Decadal Plan Research Areas	UQ Alignment through Gatton Campus
Development and exploitation of genomics	<ul style="list-style-type: none"> • Develop next generation crop and animal genetic improvements through breeding, gene-based, nanotechnologies and other technologies • Develop enhanced phenotyping capability to enhance capacity to exploit advances in genomics
Agri-intelligent technologies	<ul style="list-style-type: none"> • Explore the role of sensors and monitoring in system management spanning soil, environment, animals and equipment • Improve fertiliser technology to enhance nutrient use efficiency
Integrated data analyses	<ul style="list-style-type: none"> • Enhance links with agricultural informatics expertise eg. gene-to-phenotype analysis • Collaborate to apply artificial intelligence and big data analytics expertise to agricultural, veterinary and one health projects • Integrate data collection across agricultural and livestock systems to provide Big Data accessibility and Small Data use-ability
Clever chemistry	<ul style="list-style-type: none"> • Identify projects with UQ soil and chemical sciences researchers
Coping with climate variability and change	<ul style="list-style-type: none"> • Model and simulate farm and crop systems scenarios for profitability and risk analysis via partner links • Develop projects with UQ and partner water researchers • Seek opportunities to integrate environmental climate change research with animal and human outcomes
Metabolic engineering	<ul style="list-style-type: none"> • Link field studies at organism scale with metabolic studies across UQ (eg. AIBN) • Explore collaborative opportunities with Government and CSIRO
Sustainable, profitable agriculture and agricultural environments	<ul style="list-style-type: none"> • Enhance farm and crop systems and profitability using agronomy, modelling and simulation • Ensure sustainable agriculture and conservation in agricultural landscapes • Seek opportunities for integrated one health research spanning environment, wildlife, animal and human health outcomes
Animal health and welfare	<ul style="list-style-type: none"> • Advance research into animal behaviour and welfare for companion and production animals • Advance animal health outcomes to optimise productivity through disease prevention and control • Optimise health and productivity in animal populations through integrated phenotypic and genomic approaches • Build multi-disciplinary and trans-disciplinary research in translational medicine and one health including clinical trials
A systems approach to agriculture	<ul style="list-style-type: none"> • Develop end-to-end approaches spanning genomes to fields • Scenario analysis of production system and whole farm modelling (eg. links with CSIRO/QAAFI APSIM modelling group) • Enhance research into infectious disease in animals • Investigate animal reproductive health



5th for Agriculture

UQ's Global subject ranking in Agriculture (NTU, 2019)



Top 20

Global institution in Agricultural Sciences/ Agriculture and Forestry (NTU, 2018; QS 2016)



Top 50

Global institution in Veterinary Science (ARU 2018; QS 2018)



2nd largest

Australian university for Agricultural, Environmental and Related Studies enrolments (undergraduate and postgraduate)



2,200+ Students



460+ international students



380+ postgraduate students



436 beds

on-campus accomodation in Gatton Halls of residence



400+ staff



10M+

Research Income (approx. pa to Gatton research undertaken by SAFS, SVS and QAAFI)



20K+ Alumni

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