

UNIVERSITY of TASMANIA



Tasmanian Institute of Agriculture

60 | Teaching
YEARS | Agricultural
Science

Celebrating 60 years of agricultural science





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▲ 30 year reunion, 1993



Vice-Chancellor's foreword

Professor Rufus Black, Vice-Chancellor, University of Tasmania

This wonderful book is dedicated to celebrating 60 years of Agricultural Science being taught at the University of Tasmania, a terrific achievement spanning almost half the lifetime of the institution.

It offers a reflection on the history of Agricultural Science at the University of Tasmania, shares stories of Alumni from across the decades and looks towards the Tasmanian Institute of Agriculture's (TIA) future.

Agriculture is such an important part of life here on the island. For those who work in the sector, it is much more than a vocation. It is a way of life. You can see this right across the island. It is evident in the generous community support for scholarships in Agricultural Science, in the people who grow and produce food and fibre and in the communities they are a part of. In many ways, these people and the places they call home define our island character.

It is very special therefore for a University to have the kind of legacy that we do in teaching Agricultural Science and in undertaking research that tackles complex and in many ways shared challenges right across the spectrum of agriculture. That is especially true in a place like Tasmania, where agriculture is such a fundamental part of who we are and where we balance agricultural production with some of the most pristine natural environments found anywhere.

As we look to the future, we face serious challenges and precarity when it comes to sustainably feeding the world's population, balancing food production with looking after our soils and landscapes and mitigating climate change. Agriculture is inherently linked to these profound challenges and is under great pressure to respond.

Here at the University of Tasmania, we have the opportunity to help this island become a lighthouse for the world in how to live sustainably. A very important part of that is how we farm, grow and produce food and how we steward our lands and waterways. TIA has a fundamental role to play in supporting Tasmanian agriculture to respond to those challenges. It is within our reach to be a guiding light for others in sustainable and circular agricultural production in all of its forms.

This book and the legacy of 60 years of teaching Agricultural Science at the University give me hope that together we can create the kind of positive and lasting change that the world needs.

▼ Professor Rufus Black, Vice-Chancellor





▲ Professor Michael Rose, Director, Tasmanian Institute of Agriculture

Director's foreword

Professor Michael Rose, Director, Tasmanian Institute of Agriculture

It is my very great pleasure to write a foreword to this publication celebrating 60 years of agricultural science, teaching, and research at the University of Tasmania.

The record of achievement since the first intake of agricultural science students in 1963 has been enviable, with hundreds of students graduating from courses delivered at bachelor, masters and doctoral levels, each of whom have gone on to contribute to a thriving agricultural industry in Tasmania and beyond. Meanwhile, the University's research output in agriculture and food sciences has become world leading.

The disciplines of Agricultural Science have existed in several academic units over the years, culminating in the current Tasmanian Institute of Agriculture (TIA). As we mark this important milestone, we record a debt of gratitude to those who had the vision to establish the department more than 60 years ago.

During this time, the synergistic relationship that developed between the University, the Tasmanian agricultural industry, and the Tasmanian Government has been remarkable. Areas that stand out include the early research on pyrethrum and poppies for Tasmania, providing a basis for innovation in the agricultural industry which was adopted with tremendous agility.

Other notable areas of cooperation include the purchase of Cambridge Farm through a public appeal which was strongly supported by the agricultural industry. Cambridge continues to be a place of learning and research for agricultural systems, pasture management, soil science and livestock husbandry.

As we look to the future, it's clear that the agricultural industry of Tasmania faces many exciting opportunities, but also some major challenges. Not least amongst these are climate change, maintaining soil health, leveraging the investment in irrigation, maintaining biosecurity, and the efficiency of resource use. TIA is situated at the centre of the response to these challenges and as we look towards the next 60 years of agricultural science at the University, TIA remains ready to enable the agricultural sector to strategically respond.

I extend my heartfelt congratulations to the agricultural science community of the University, staff and students, past and present, for the achievements recorded over the years. The commitment, dedication, and passion from many people has strengthened the agricultural industry in Tasmania, and in turn the industry has strengthened the University, contributing to the current success.

May this publication stand as a testament to that achievement and be an inspiration for new generations of graduates and the discoveries to come.

60 Years of Agricultural Science

Introduction from Bob Menary

Agricultural Science was established in the University of Tasmania when George Wade was appointed to the chair in 1962 and his leadership shaped the School of Agricultural Science for the next 19 years. He was largely responsible for the selection of foundation appointments in microbiology, agronomy, soil science, horticultural science and entomology.

The school of Agricultural Science had its own faculty for a number of years. The faculty had strong representation from industry whose input had a major influence on the purchase of the farm at Cambridge and practical training that formed part of the requirement to complete the degree. The industry support through access to land and services was also a major boost to research and teaching outcomes.

The establishment of teaching and research facilities extended over a number of years. For the first five years, teaching and research activities were undertaken in army huts located on the lower campus. Five years later, the permanent home was located above Churchill Avenue as part of a Life Sciences complex with glass houses located close by. At this site, Agricultural Science continued to expand and in 1988 a new extension was built and Agricultural Science occupied the two top floors to house microbiology, horticultural science, and soil science.

In 1969 the Electrolytic Zinc Company donated a major temperature-controlled glasshouse. The head house of this facility was later extended through a Rural Credits Development Grant to accommodate plant extraction equipment. The land surrounding the complex became an experimental area for apple cultivars, wine grapes, essential oil and vegetable crops.

The discipline of microbiology was the sole provider of teaching and research in the Faculty of Science. This discipline quickly developed an international reputation for their research in food and Antarctic microbiology.

In other disciplines, contributions have been made to industries through pasture improvement, animal nutrition, plant disease and insect control and new crops such as poppies, pyrethrum and essential oils.

The essential oils programme produced extracts of peppermint, spearmint, parsley, Boronia, fennel, black currant and Tasmanian pepper. These were tested on the world market and were in demand in USA and Europe. To meet this demand, the partners Tasmanian Development Authority, the University and growers formed a company Essential Oils of Tasmania to sell products worldwide. The company was quick to develop and return a profit at which time it was sold to a private company that still operates today.

It is a privilege to witness the continued growth and innovation in agricultural research and education. The University and TIA play a pivotal role in advancing the field of agriculture, fostering talent, and addressing critical challenges in our industry.

Congratulations on this milestone and may the next 60 years be even more fruitful and transformative for agriculture in Tasmania and beyond.

Professor Robert Menary is now retired after many years at the University of Tasmania where he had a distinguished career in teaching and research in agricultural science.

▼ Agricultural Science students with Professor George Wade, 1968





History

The 1957 Murray Committee report on Australian Universities recommended that a Faculty of Agriculture be established at the University of Tasmania because of agriculture's importance to the state.

The founding Professor, George Wade, was appointed in 1962, and the first intake of students occurred in 1963. Professor Wade and three colleagues taught across all of the disciplines in the early years, though in time expertise in plant pathology, microbiology, biochemistry, agronomy, soil science, livestock production, horticulture, farm management and entomology were delivered.

In an interview for the University of Tasmania Oral History Project in 1983, Professor George Wade reflected on the challenge of delivering a broad-reaching course to the meet the needs of students and the Tasmanian agricultural industry.

"Graduates in agricultural science may conduct quite basic fundamental research after graduation, they may be engaged in applied research, or in fact the majority of them are engaged in advisory type of work, or management type of work. With small resources we had to try and provide a type of course which would be suitable for all these purposes," Professor George Wade.

Over the past 60 years, our research and teaching staff have trained hundreds of successful agricultural leaders and innovators who are addressing some of the world's biggest challenges using science, technology, and business skills.

Past students in senior positions give credit to the breadth of the course in science and technology as a foundation on which they have built and supported successful careers in agribusiness and research.

The connection with the Tasmanian Government's agriculture department, now named the Department of Natural Resources and Environment Tasmania, has been a strong theme throughout the past 60 years. This collaboration has enabled many benefits for Tasmania's agricultural industries.

A milestone was achieved in 1997 with the establishment by Professor Rob Clark and the Tasmanian Government of the Tasmanian Institute of Agricultural Research, as a joint venture between the University of Tasmania.

TIAR was later amalgamated with the disciplines of Agricultural Science, to form the Tasmanian Institute of Agriculture (TIA) as it is known today.

The joint venture is a successful model. In 2022 it generated \$2.50 of external investment for research and industry development in Tasmania for every \$1 of government spending. The research portfolio of TIA is currently more than \$40 million, with more than 30 PhD students graduating each year in addition to a similar number of undergraduates and Masters coursework students.

The Tasmanian agriculture industry has changed dramatically since the Faculty of Agriculture was launched in 1963, but some things remain the same. A strong spirit of camaraderie between staff and students and a passion for agriculture are common themes in accounts from Ag Science alumni (aka "aggies") across the past sixty years.

▲ Glen Richardson, Manager of the Horticultural Research Centre, early 1970s

Timeline

1957	Establishment of a Faculty of Agriculture at the University of Tasmania recommended by the Murray Committee on Australian Universities.
1962	Dr George Wade appointed inaugural Chair of Agricultural Science.
1963	First intake of undergraduate students in the Faculty of Agricultural Science.
1969	Opening of the Horticultural Research Centre.
1970	Establishment of experimental vineyard at Horticultural Research Centre.
1973	The first PhD awarded by the Faculty of Agricultural Science, to Dr Glen Kile.
1979	University Farm at Cambridge was acquired with assistance from the Tasmanian Government and a public appeal.
1988	New facilities opened in extended Life Sciences building at Sandy Bay campus.
1995	Opening of the Agricultural Science and Research Facilities Wing at the North West Coast centre of the University of Tasmania, containing the Cuthbertson Agricultural Research Laboratories.
1997	The Tasmanian Institute of Agricultural Research was formed as a joint venture between University of Tasmania and Tasmanian Government, bringing together two of the state's major agricultural research and development providers.
2001	Opening of new glasshouse at the University's Cradle Coast campus.
2007	TIA acquired the Elliott Dairy Research Facility and Forthside Vegetable Research Facility from the Tasmanian Government, creating new opportunities for research, industry development, training and education.
2010	Implementation of the first Masters coursework program, the Masters of Applied Science (Agriculture and Microbiology).
2011	The institute was renamed as the Tasmanian Institute of Agriculture (TIA).
2017	A realignment of TIA activities into four centres: 'Food Safety and Innovation', 'Agricultural Systems', 'Dairy, Grains and Grazing', and 'Horticulture'.
2018	TIA recognised in new university structure as a research institute within the new College of Sciences and Engineering.
2018	Caroline Mohammed becomes the first female professor in agricultural science at the University of Tasmania.
2019	First Tasmanian agricultural science Rhode Scholar was awarded to Oliver Gales.
2023	Bachelor of Agricultural Science expanded to be delivered from Launceston and Hobart.

▼ First student cohort and faculty in the 1960s





▲ Life Sciences Buildings, Sandy Bay, 1968/1969

Alumni Ambassadors

Peter Headlam

1960s Alumni Ambassador (graduated 1968)

Pete Headlam graduated in 1968 with a Bachelor of Agricultural Science and used it to carry on the legacy of his family's six generations of sheep farming.

"I am unsure that my success and enjoyment of farming resulted entirely from my years at university, but the resulting knowledge enhanced my skills, particularly in animal breeding, crop and pasture management and generated a scientific attitude to on farm experimentation and innovation," he said.

Pete looks back on his time at university and fondly remembers the friendships and field trips.

"We all enjoyed the camaraderie generated by the field trips we did for animal production with Alan Bray and agronomy with Jim Yates over a number of years of the course and the lesser field trips associated with botany and geology taught by Professor Jackson, especially the time at the Cressy Ag Research Station," he said.

Pete said he was an early adopter of agricultural science as both a student and a farmer, as he dabbled in truffles, venison, wool processing and group breeding.

"Over that time the Department of Agriculture, as a farmer's educator, consultant and researcher has virtually disappeared but has been replaced by private enterprise who very successfully filled the gap and became valuable businesses contributing to our improved technologies and progress in agriculture," he said.

After a number of years solely on the family farm, Pete decided to try his hand at teaching.

"The knowledge I learned allowed me the enthusiasm to apply for a part-time role as a lecturer at Tas Institute of Technology in the course business in agriculture, which not only diversified my income but which I thoroughly enjoyed doing," he said.

Pete's consuming desire to travel has taken him to many countries across the world.



▲ Peter Headlam

"I constantly observed both the good and the bad that farming has on the environmental outcomes all over," he said.

"I feel that the increasing need to improve production has led to many positives, advanced machinery and plant varieties and culture but negatives of lack of diversity leading to unnecessary and destructive clearing of forests and replacing them with monocultures, such as palm sugar and salmon aquaculture."

Arthur 'Tom' Dunbabin

1970s Alumni Ambassador (graduated 1975)

Tom grew up on his family's grazing farm, Bangor, on the Forestier Peninsula in Tasmania's southeast, where he worked alongside his father.

Tom graduated from the University of Tasmania in 1975 with a Bachelor of Agricultural Science with Honours. He fondly reflects on his time at the University and recalls the inspiration provided by lecturers to learn, and the friendships developed with his fellow students.

"The degree taught me to learn through research and experimentation," he said.

Following graduation, Tom returned to the family farm and used techniques learnt at university to implement a soil mapping and nutrient testing program that tailored fertilised application to pasture requirements.

"Grazing native pastures and woodland areas of Bangor with fine woolled Merino sheep was a major enterprise," he said.

"Some native plants at Bangor are vulnerable to excessive grazing at some times of the year, so sheep management needs to be tailored to ensure the plants are not overly impacted."

Since then, Tom has had extensive off-farm involvement in natural resource management (NRM), research and development. He was instrumental in establishing the Tasman Landcare Group in the 1990s and sought funding to implement NRM projects in the Sorell and Tasman Municipalities.

At a national level, Tom was a member of project management committees, for both Australian Wool Innovation and Meat & Livestock Australia, implementing programs that fostered productive and sustainable livestock grazing systems across Southern Australia.

Tom said that in the future it will become more important to design and implement agricultural systems that are productive, economically viable and environmentally sustainable.

"To conserve its productive base, the soil must become the focus of farming systems. Farmers will have to adapt from the productivity at all costs mindset to one that ensures the soil is not only protected but rebuilt after decades of over exploitation," he said.



▲ Arthur 'Tom' Dunbabin

"For example, many of our vegetable production systems result in soil erosion, compaction and structural collapse."

After a lifetime of involvement in agriculture, Tom has now turned his hand to writing about Tasmanian history, with a special interest in female convictism. Tom is a member of the Female Convict Research Centre and has contributed to their publications and presented at seminars.

Tom and his wife Kathy now live self-sufficiently on a small acreage in Tea Tree in southern Tasmania. Bangor remains in the Dunbabin family and today is managed by Matt and Vanessa Dunbabin and their children, who are the fourth generation of Dunbabin's to be raised at the property.

Associate Professor Martin Steinbauer

1980s Alumni Ambassador (graduated 1989)

Martin is the Assistant Director for Response Operations at the Australian Government's Department of Agriculture, Fisheries and Forestry. He's also an Agricultural Science graduate of the University of Tasmania and has fond memories from his time as a student.

"I have very fond memories of my summer work experiences including with Westland Nurseries, Roger Wallace Crop Protection, the Hydro Electric Commission and the Tasmanian Department of Agriculture," Martin said.

"I also enjoyed getting to know over four years, classmates who were from farming backgrounds which differed from mine as a person who had grown up in Hobart."

The opportunity to study entomology and develop an inherent understanding of Australia's unique insect fauna was another highlight for Martin.

"My agricultural science degree gave me a broader background (e.g. entomology, botany, soil science and organic chemistry) than colleagues who had studied botany or zoology as undergraduates," he said.

"Few other degrees in Australia at the time provided courses in entomology which is the discipline I wanted to pursue as a career. I would not have the inherent understanding of the uniqueness of Australia's insect fauna without having studied entomology or appreciate the role of biosecurity to protecting Australia's natural heritage."

Martin said the degree better prepared him to undertake a PhD within a Cooperative Research Centre because he appreciated the need for applied research and how industry wanted to learn about findings.

When asked about the challenges for agricultural science into the future, Martin said the biggest challenge is trying to sustain humanity without negatively impacting the environment upon which we rely so heavily.



▲ Associate Professor Martin Steinbauer

"The biggest challenge for agriculture is trying to sustain humanity without causing catastrophic degradation of the biotic and abiotic systems which have sustained us until now. We have almost passed that point," he said.

"Tasmanians should never forget their unique position as a clean green producer and that adoption of the most advanced technologies (e.g. for environmentally sensitive pest management) is the only way to credibly maintain that status, especially when it comes to supplying to European markets."

Konrad Chung

1990s Alumni Ambassador (graduated 1993)

Once Konrad graduated in 1993, he started his career in agriculture as a field officer in Devonport, Tasmania.

Konrad fondly remembers his time studying agricultural science, making new friends, and establishing new networks.

“No matter what year you were in or if you were a staff member, everybody was there to help and support you. As a small faculty, we were a close-knit group and were able to form good bonds,” he said.

“The social events around the Ag Hut were a highlight and continuing the Ag Society traditions was an honour.”

Studying agricultural science has enabled Konrad to have a positive impact on the Tasmanian agricultural industry through his expertise in agronomy, agrochemicals, business planning and soil fertility.

“From growing vegetables, selling products through to advising on seed production, my degree has provided a sound base for understanding issues and how to solve problems,” he said.

“More importantly I am still learning in an ever-changing climate.”

Konrad said that it is important for agricultural science to evolve along with the changing environment and limited resources here in Tasmania.

“Tasmania is in a unique position where it is recognised at the forefront of agricultural production. To continue this momentum, agricultural science needs to continue to investigate the opportunities and solve problems within the industry,” he said.

“Agriculture needs to continue to engage with people and we must maintain Tasmanian agriculture as it is a very important contributor to the Tasmanian economy.”

Across his 30-year career, Konrad has specialised in agronomy and is now an experienced field consultant for Midland Seeds involved in the management of the production of arable food and oil seed crops including wheat, barley, oats, hemp, linseed, ryegrass, field peas and canola seed.



▲ Konrad Chung

Konrad is thankful for his continued relationship with the University and the Tasmanian Institute of Agriculture (TIA).

“TIA is a major contributor to the Tasmanian agricultural landscape. We can see how TIA has been part of the development of new crops, orchards, vineyards, poly tunnels, pivot irrigators and technology which are all prevalent in Tasmania today,” he said.

“TIA today has continued to help me solve problems and through interactions at the University, I am able to see the future of Tasmanian agriculture in good hands.”

Donna Lucas

2000s Alumni Ambassador (graduated 2007)

Donna studied a Bachelor of Applied Science, graduating with honours in 2007 as a mature aged student.

Donna's early career started on a different path at age 15 within an accounting firm, where she studied through night school to become an accountant.

Whilst enjoying accounting and business analysis, she often pondered about the possibility of studying agricultural science, having grown up on a farm. When Donna's youngest child went to school, she enrolled at the University of Tasmania.

Donna said the agricultural science degree allowed her to get started in consulting and meant she could easily move into the job she wanted.

"It also provided a good foundation for all the learning you do on the job, whether that be soil health, crop nutrition or statistical analysis. You never know when subjects from university might come in handy, because your career can go in many directions," she said.

Donna went on to become a Senior Consultant at RDS Partners then moved over to RMCG where she has been an Agricultural Consultant for the last 11 years and became a Principal in July 2023.

At RMCG, Donna works with people in the agri-food sector to solve problems and put research into practice. With a background in accounting and business management, Donna can advise on financial management as well as agricultural science.

Recently, Donna has been working with primary producers and industries to tackle waste management.

"Producers seek to improve waste management on farms and in industries, however there are often barriers to changing practices including logistics and geographical isolation. We review waste and identify the challenges and opportunities for industry to manage waste," she said.

"I also work with carbon accounting and help producers to understand soil carbon and business emissions management; and I believe it's important for producers to get informed about emissions, so that they can tell their sustainability stories."



▲ Donna Lucas

Donna said that the agricultural industry needs to consider the full lifecycle of environmental impact.

"From greenhouse gas emissions to renewable energy and water management to plastic waste. Like other industries, agriculture needs to improve its waste management and resource use efficiency," she said.

Looking back on her career and experience, Donna encourages young agricultural students to develop and broaden their networks and their skills.

"I've learned a lot from professional development courses and also from the farmers and agronomists that I work with," she said.

"Having a good network can be invaluable when solving problems and working collaboratively with different groups of people. Remember to also focus on your soft skills like leadership, teamwork and communication."

"But most of all, have fun and be kind to yourself and others."

Oliver Roberts

2010s Alumni Ambassador (graduated 2015)

Ollie studied a Bachelor of Agriculture (2015) and a Master of Business Administration (2018) and graduated with more than 10 years of farm management experience under his belt having worked on his family's dairy farm on the north-west coast of Tasmania since 2005.

Ollie reflects on his time at the University fondly as he remembers the field trips and camaraderie amongst the students and recalls lab classes dissecting the mysteries of animal and plant biology.

"There was something uniquely invigorating about donning our lab coats, gathering around the lab benches, and collaborating with fellow students to complete our practical tasks. Each experiment was like a puzzle, and piecing together the complexities of life under the guidance of our knowledgeable lecturers was an experience I will always cherish," he said.

After graduating, Ollie moved to farm advisory and began working as a Product Manager at Sense-T, a partnership between the University of Tasmania, CSIRO, and the Tasmanian Government, working on the mobile pasture prediction tools.

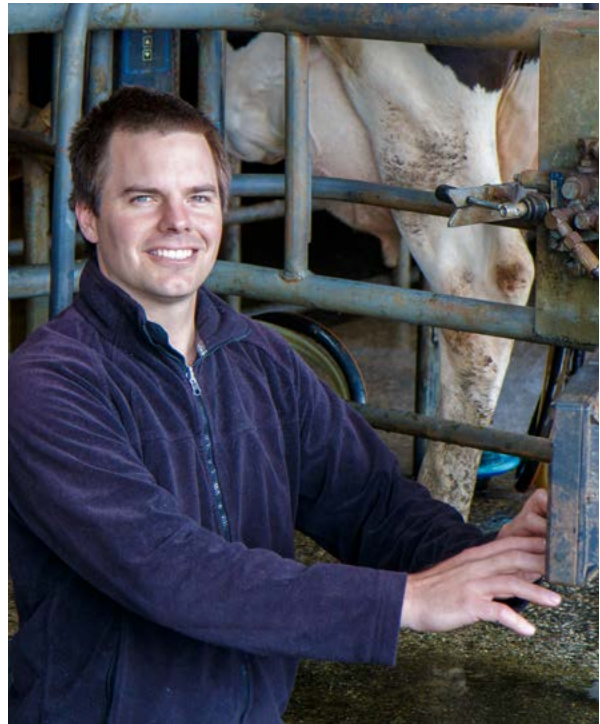
At the same time (since 2014), Ollie was developing his passion project, Pasture.io, helping farmers worldwide achieve improved efficiency, higher profit margins, and greater peace of mind in an environmentally sustainable manner.

Ollie then had a brief stint in Sydney managing the University of Sydney's Robotic Dairy Operations, and at the same time developed his next agtech solution, Milkflow.io, a dynamic platform that helps farmers to plan and adjust milk production to inform accurate feed budgets.

Ollie said that his degree has been instrumental in his career, guiding him to his current role as CEO of Pasture.io.

"Each course within the degree program acted as a catalyst, bolstering my inherent understanding of farming cultivated from years of growing up on and managing dairy farm operations," he said.

"I was able to blend practical experience with academic knowledge, leading to a more holistic understanding of the agricultural landscape. The business units provided an invaluable framework for corporate strategy, market analysis, and operational planning."



▲ Oliver Roberts

"Moreover, the degree instilled in me a sense of resilience and adaptability, attributes that are crucial in the ever-evolving agtech landscape."

Ollie now lives in Hobart and continues to manage Milkflow.io and Pasture.io. Looking towards the future, Ollie said that agricultural science in Tasmania will face the challenge of integrating technology, especially with the rise of synthesising plant and animal protein.

"Our main goal should be to adapt to and incorporate these technologies wisely. We must strive to use them as tools for sustainable farming and productivity, while maintaining a vigilant stance to avoid pitfalls. The future of agriculture rests in our ability to be flexible and innovative, without losing sight of our ethical and environmental responsibilities," Ollie said.

Lilia Jenkins

2020s Alumni Ambassador (graduated 2022)

Lilia graduated in 2022 with a Bachelor of Agricultural Science (Hons) and was awarded both the Driscoll's Scholarship in Agricultural Science and the Fruit Growers Tasmania Honours Scholarship while studying. Choosing to follow her passion in the field of entomology, Lilia was offered jobs in both the private and public sectors prior to graduation, finally accepting a job with Cesar Australia as a graduate extension scientist, working in integrated pest management.

Lilia said that the course sparked a deep fascination with the diverse and complex world of insect ecology and biology and their integral roles in sustainable agriculture. It was from these initial hands-on experiences that eventually shaped her honours project that investigated integrated pest management that she now uses daily as part of her job.

Lilia was part of the pandemic virtual classroom cohort who faced remote learning challenges and eventual relief of returning to face-to-face teaching.

"Suddenly, the little things I took for granted before gained a whole new level of significance, like chatting to people in the morning over a cup of tea, hiking through the Australian bush, or even getting stuck in the rain during the field work."

Lilia was a student ambassador for the University and TIA, which allowed her to share her knowledge of entomology and inspire the next generation of agricultural science students.

"Effective communication is vital, and I believe it plays a crucial role in bridging the gap between research and public understanding, especially in today's era where we are bombarded with competing information. Now, I am lucky enough to work in a position where I am not only actively involved in entomological research but also have the opportunity to basically talk about insects all day!"



▲ Lilia Jenkins

As well as having a keen eye for tiny critters, Lilia is passionate about how agriculture can help to mitigate the challenges of climate change, through gaining a deeper understanding of the intricate systems involved in entomology. She believes that a shift away from traditional goals and embracing broader perspectives could lead to significant change.

"I think one of the most important goals going forward, especially as an extensionist, is to foster a sense of empathy, understanding, and responsibility towards the challenges faced by agriculture, both on an individual and a societal level, so we can craft innovative and sustainable solutions that address the core issues at hand."

Women in agricultural science

One of the notable and welcome changes over the past 60 years has been the steady increase in the number of women electing to study and work in agricultural science.

Graduation photographs from the early years of Agricultural Science at the University of Tasmania show a male-dominated student cohort. Nowadays, the student population is much more diverse, and data provided by the University of Tasmania shows a significant increase in female participation in agriculture, environment, and related courses over the past 30 years. In 1991, agriculture, environment and related courses attracted 35% more males than females. This figure has changed dramatically and in 2023 female students make up just over half of the student cohort.

TIA supports a diverse student and staff cohort. We are proud to have an active Inclusion, Diversity and Equity (IDE) working group that promotes a culture that values and supports diversity among our staff, students and stakeholders.

We recognise that increasing diverse and inclusive engagement in science, technology, engineering and mathematics (STEM) will benefit our agricultural industries and the economies and workforces that underpin them.

Dr Samantha Sawyer

Sam is a Lecturer and Research Fellow in Food Science at the Tasmanian Institute of Agriculture and is a strong role model for young women in STEM (science, technology, engineering, and maths) and agriculture.

Sam grew up in Sydney and attended University of Sydney to complete a Bachelor of Science (Advanced) (Hons) in 2009. She went on to complete a PhD in Industrial Biotech and a Graduate Certificate of Innovation & Enterprise whilst also interning at a business development firm for Pharma and medical technology industry.

After completing her PhD, Sam and her Tasmanian husband moved to Tasmania where Sam started work at Tasmanian Alkaloids (now known as Extractas Bioscience) whilst her husband was working in plant tissue culture before studying to become a STEM high school teacher.

Sam's career has been spent working with both industry and academia as she went on to consult on sustainable agriculture, then was employed at the University of Tasmania as a research fellow in oenology, where she specialised in the chemical and sensory analysis of wine.

Sam is a strong advocate for gender diversity in STEM and agriculture. She acknowledges that change takes time, although is thankfully starting to see a shift.



▲ Dr Samantha Sawyer

"I was fortunate in that the fields and institutes I chose to study were gender balanced at an undergrad level and to an extent the postgrad level. However, role models in higher academic levels were predominantly male," she said.

"There's a lot more focus around inclusion, diversity, and accessibility being incorporated into curriculum. Lecturers, researchers, and tutors are increasingly diverse from the perspective of gender, ethnicity, orientation, and appearance and that is encouraging to see," she said.

Sam was recently admitted to the Superstars of STEM program which is aiming to break down society's gender assumptions about scientists and increase the public visibility of women and non-binary people in STEM.

"It's an incredible opportunity for me to promote gender diverse role models in STEM to break down some of those stereotypes about who typically is in STEM and who succeeds in STEM," she said.

"Superstars of STEM is a training program to equip me with advanced communication skills so I can be part of a growing cohort of female and non-binary role models in STEM."

Sam is seeking solutions to keep Australian businesses globally competitive economically, socially, and environmentally. Whether that means helping industries be more resilient to climate change, finding ways to process food waste into great tasting and nutritious food, or improving production systems to be efficient and socially conscious. Sam is working at the interface with the people who will inform, steer, and benefit the most from her research.

Sam received a 2022 Science & Innovation Award (Wine Australia) for her project helping the wine industry adapt to climate change. She is passionate about STEM outreach and engagement in regional areas and mentoring students and junior staff members to discover and achieve their career aspirations.

Dr Tamiaka Pearce

Tamiaka is a Research Fellow at TIA specialising in genetics and molecular plant pathology. She is also a mum to two young boys, Austin and Harvie, and together with her husband, Lachy, runs a cattle stud from their family farm at South Riana.

A self-confessed 'science nerd', Tamiaka has always had her sights on a career in the fields of science, technology, engineering and mathematics and medicine (STEMM).

After considering other branches of science, Tamiaka studied Agricultural Science with Honours (plus units in biotechnology and genetics) at the University of Tasmania. She chose agriculture after discovering the breadth of career opportunities in the industry, the opportunities to apply science to achieve tangible outcomes, and the number and variety of jobs available. It was a defining decision in her life and one that she has not looked back from.

“My hope was always to come back to the North-West Coast [after finishing university] for a job in an industry that I see as really important. I believe that research needs to have impact and not just be done for the sake of it,” she said.

Tamiaka returned home to the North-West Coast to study her honours project on pyrethrum, under the supervision of TIA Plant Pathologist Dr Jason Scott.

She then briefly worked at Tasmanian Alkaloids before commencing a PhD project to better understand and help growers to manage tan spot, a disease which was an emerging threat to the pyrethrum industry at the time.

Throughout her PhD, Tamiaka developed a good relationship with Botanical Resources Australia (BRA) that has led to further funding and research projects. Ten years later, Tamiaka has established herself as a respected early-career-researcher in her field and continues to conduct important and research to support the pyrethrum industry's productivity.

This year she was awarded an Australian Research Council (ARC) Early Career Industry Fellowship worth almost \$500,000 and \$250,000 through the Tasmanian Government's Agricultural Development Fund for a second collaborative research project with BRA.

Tamiaka's advice to women considering a career in agricultural science is to get out there and give it a try.

“Until you try something you don't really know if you will enjoy it. Get in contact with someone working in the industry and organise to have a day in the lab or out on a farm,” she said.

“Science is versatile and there are so many options for where you can go.”

▼ Dr Tamiaka Pearce



Professor Caroline Mohammed

Caroline is Centre Leader for the Agricultural Systems Centre at the Tasmanian Institute of Agriculture (TIA) and Deputy Director of the TAS Farm Innovation Hub. In 2018 she became the first female Professor of Agriculture at the University of Tasmania.

Caroline grew up in the United Kingdom in South London where she had a glasshouse from the age of 11 but wasn't set on agriculture until it was time to go to university.

"My mother used to find sprouting conkers (horse chestnuts) in my drawers. I was interested in everything and I was not particularly a scientist, in fact I was top in art. It was the adventure of studying abroad that led me to agriculture," she said.

Caroline left home at the age of 18 to study tropical agriculture at the University of West Indies in Trinidad where she met her partner and started a family. She graduated with a degree in tropical agriculture in 1974, then spent the next 10 years working in Trinidad as a plant pathologist, where she said it wasn't always easy working within a male dominated Caribbean culture.

"I was the only white person on campus. It was a completely different culture compared with anything I could have expected. There were some other women in my degree, however they considered the man to be the boss in a partnership," she said.

"It was also a challenge coming into a country to study agriculture when all the crops were foreign. Everything was different."

Caroline's husband then got a scholarship in Europe, so the family moved to France where they welcomed their second child. Caroline supported the family by teaching English after learning French herself, by watching French television and being immersed in the culture. Caroline then started her PhD in French at the University of Clermont-ferrand on plant pathology which she completed in 1987.

"When I went to lectures in France, I didn't understand a word. I had to photocopy lecture notes and work it out from that. That's why I have a lot of empathy for foreign students who come to study at TIA," she said.

"It took me a long time to complete my PhD as my ex-Husband left at that point, so I was a single mother with two jobs and two children."

After completing her PhD, Caroline and her two sons moved back to the United Kingdom where she worked at the University of Oxford from 1989 to 1993 leading projects in Italy, Germany, France, Zimbabwe, Kenya and the Congo.



▲ Professor Caroline Mohammed

Caroline arrived in Tasmania in mid-1995 to accept a co-funded position between CSIRO and the University of Tasmania and has since been actively involved in forest health and pathology research.

Caroline is a pioneer of new areas of science, such as exploring host defense responses in eucalypts, the development of a biocontrol to a tropical fungal pathogen, modelling the impact of pest and diseases as climate changes, investigating the potential of potatoes in Kenya and Tasmania and developing a whole farm systems game.

Since 1996, Caroline has supervised five postdoctoral fellows, 22 postgraduates and eight honours students. She is trained as a translator and has been involved in teaching English to non-English speaking students at TIA.

Caroline has been the chair of the College of Science and Engineering Inclusion, Diversity and Equity committee for the last five years.

"Challenges for women still exist and there is a long way to go. Over the last five years, there's been massive improvements in terms of awareness, people and wellbeing. There have been lots of positive changes, although our stats still show that we have a gender imbalance," she said.

"We need to encourage more women to have their family life and children and still have a career. We want diversity across all areas, not just gender diversity."



▲ Artist impression of TIA's multi-purpose research facility to be constructed at the Newnham campus.

Tasmanian Agricultural Precinct

An exciting future for agricultural research and education in Tasmania.

The Tasmanian Institute of Agriculture's future-focused strategy is centred around supporting Tasmania's ambitions for primary industries, while working with industry and partners to deliver greater efficiency and sustainability for the sector.

Our vision is to enable Tasmanian food producers and processors to accelerate primary sector productivity while maintaining and improving Tasmania's land and water quality for future generations.

The Tasmanian agriculture sector is set to benefit from an investment in research and education infrastructure in Northern Tasmania. This \$26 million-dollar investment will include a glasshouse, multi-purpose research facility and a large outdoor growing area including polytunnels and retractable roof growing areas.

The facilities have been purposefully designed to enable high-impact and commercially relevant research and specialised teaching.

The ability to provide an outstanding experience for our students was a top priority during the design process. Students will have access to a greater range of hands-on learning opportunities, through embedded teaching spaces and the ability to interact with and run industry-relevant research trials on campus.

TIA's northern headquarters will form part of the new Tasmanian Agricultural Precinct. Incorporating the Department of Natural Resources and Environment (NRET), the TAP will bring together agricultural science and research, water management, industry development and biosecurity functions to create a focal point for collaboration and excellence.

TIA remains a state-wide institute and will continue to have a strong presence across Tasmania with staff located in each region and our world-class research farms in the North-West. The Bachelor of Agricultural Science with Honours continues to be available for students to study in Launceston and Hobart'.

The first stage of construction is expected to commence in early 2024. Further information and updates are available on our website.

TIA is addressing important challenges including feeding the planet's growing population, adapting to changing climate conditions, and increasing the efficiency of production while using fewer resources.

These new facilities in Launceston are a major investment in our ability to answer these questions and to train and educate our agricultural workforce – the farmers and scientists who will be so critical to Tasmania's future.

► Cover photo: Dr Jim Yates and students at Cressy Research Station conducting a farm survey, 1967.

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