

UNIVERSITY of TASMANIA



Tasmanian Institute of Agriculture

# 2023 Highlights



TIA is a joint venture of the University of Tasmania and the Tasmanian Government

## About TIA

The Tasmanian Institute of Agriculture (TIA) exists to serve Tasmania's agricultural and food industries, supporting the hard-working people who are growing our food, caring for our land, and striving to ensure Tasmanian agriculture remains among the best in the world.

We do this through industry-relevant research, education and training, and encouraging the industry-adoption of findings. Central to all these activities is a dual focus on sustainability and productivity.

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.

As a Joint Venture between the University of Tasmania and the Tasmanian Government, we have strong connections across the agriculture and food chain at the local, national, and international level. In Tasmania, we work closely with local industry to ensure that our research is addressing the important issues that producers are facing now and into the future.

Around the state, we have numerous research trials underway in commercial orchards and vineyards, and on livestock and cropping properties, all done in partnership with growers and producers.

Our two research farms in North-West Tasmania (TIA Dairy Research Facility at Elliott, and TIA Vegetable Research Facility at Forthside) are the site of nation-leading agricultural research and are central to much of our research and education.

We are proud to be the home of the University's agricultural teaching discipline and deliver the statewide Bachelor of Agricultural Science with Honours, along with the training of higher degree research candidates who are vital to the industry's future prosperity.

◀ Cover: PhD candidate Pooja Poosarla at TIA's Vegetable Research Facility at Forthside.



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## Message From TIA's Director

It is always a pleasure to read the annual Tasmanian Institute of Agriculture (TIA) Highlights Report, which rounds-up a multitude of noteworthy endeavours that have occurred across our research, industry development and education portfolios during the previous year.

All these activities aim to support TIA's mission of enabling the productivity of Tasmania's agriculture and food sectors while maintaining and improving our land and water quality for future generations.

In 2023, we acknowledged an important milestone with the 60th anniversary of the establishment of the agricultural science department at the University of Tasmania. The disciplines of agricultural science have existed in several academic units over the years, culminating in in the Institute as we know it today).

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.

During 2023, we shared plans for a new agricultural research and education facility that will be constructed in Northern Tasmania. This announcement was the result of many months of planning in collaboration with researchers, teaching staff, and industry experts, to ensure the facility is fit for purpose. The proposed facility will make Launceston a destination for agricultural education and research, helping us to attract the best students and academics to further realise our mission of enabling Tasmanian agriculture.

The precinct will include a glasshouse, outdoor growing space, and multi-purpose research facility, and will become the heart of TIA's presence at the University's Newnham campus. We look forward to partnering with the Department of Natural Resources and Environment Tasmania and industry organisations to transform this site into a Tasmanian Agricultural Precinct that delivers to the State agricultural industry.

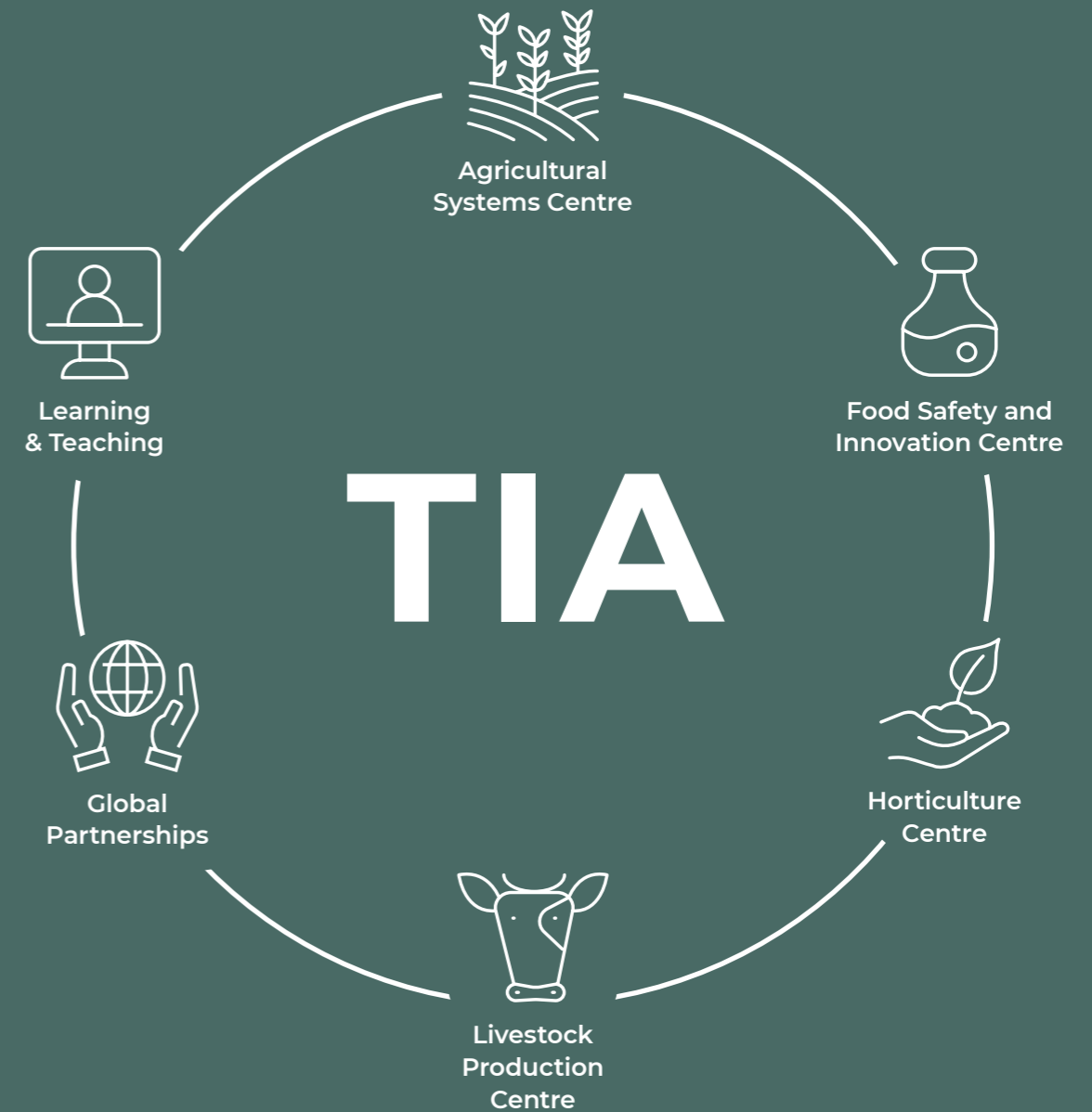
To those who have provided funding or in-kind support for our research, hosted a trial on their property, contributed their expertise and knowledge to a research project, or supported our students; we thank you for your ongoing support.

We look forward to working with you in 2024 and beyond.

**TIA Director**  
Professor Mike Rose



## Organisational structure



## Message from TIA's Advisory Board

Tasmania's agriculture sector continues to grow with the latest Tasmanian Agri-Food ScoreCard showing the value of agriculture at \$2.34 billion in 2021 – 2022.

Unique in Australia, the Tasmanian Institute of Agriculture (TIA) is at the heart of the State's approach to fostering world-leading cool climate agricultural research, development and extension (RD&E). I welcome the extension of the Joint Venture Agreement for a further five years to 2029 as it continues to deliver world-class agricultural RD&E and education that helps to improve on-farm productivity and ensure the long-term sustainability of the industry in this state.

We know that for every agricultural science university graduate in Australia, there are many jobs and career options available. The University of Tasmania through TIA has had a long history in agricultural science teaching and continues to play a pivotal role in providing high-quality education. This history was captured through the December 2023 publication of "Celebrating 60 years of agricultural science" at the commemoration of 60 years of the Forthside Vegetable Research Farm field day. It shows the level of importance that industry places on the RD&E undertaken in Tasmania.

With the University of Tasmania being acknowledged as the top university in the world for climate action (according to the Times Higher Education Impact Rankings) we know that the technological and infrastructure upgrades to TIA's research farms at Elliott and Forthside will continue to ensure that TIA and Tasmania are well placed to contribute to world leading climate action RD&E.

The Dairy Research Facility at Elliott is of strategic importance to Australia's dairy industry and is home to the \$6.5 million Dairy HIGH 2 project focussed on pasture-based dairy systems. This five-year partnership will address industry challenges and opportunities to achieve highly productive and profitable dairy operations into the future.

Making the most of the upgrades, Forthside is hosting important research discussions as part of the Hort Frontiers Program "Sustainably growing horticulture value in cool climate Australia".



The research program has been developed through industry consultation and is supporting the sustainable growth of the value of cool climate horticulture by 20 per cent over five years. Research activities cover potato, berry, cherry, vegetable and weed management in rotational cropping systems.

TIA's transition to the new Tasmanian Agricultural Precinct in Newnham is progressing. The \$26 million project includes a glasshouse, multi-purpose research facility and space for in-ground trials, featuring retractable roof growing areas and polytunnels.

I thank Professor Mike Rose for his leadership in 2023 and acknowledge the excellent RD&E outcomes across the dairy, livestock, horticulture and perennial horticulture that TIA staff continue to deliver. It is simply too difficult to single out all the amazing work being undertaken by the TIA team, and they are to be commended for their outstanding achievements, research strengths and commitment to industry partnership.

**Secretary of the Department of Natural Resources and Environment Tasmania**

**TIA Advisory Board Chair**

Mr Jason Jacobi

A close-up photograph of a hand holding a hop cone. The hand is positioned in the lower right foreground, with fingers gently gripping the hop cone. The hop cone is green and has a textured, cone-like appearance. The background is a soft-focus green, showing more hop plants and leaves, suggesting a hop garden or field.

**The Tasmanian Institute of Agriculture (TIA) will enable Tasmanian food producers and processors to accelerate primary sector productivity while maintaining and improving Tasmania's land and water quality for future generations.**

# New facility for agricultural research and education

Tasmania's agricultural sector is set to benefit from a new purpose-built education and research facility to be constructed in Northern Tasmania.

The facility has been purposefully designed to enable high-impact and commercially relevant research and specialised teaching by the Tasmanian Institute of Agriculture. The facility will include the following features:



## Glasshouse

The glasshouse will have an advanced level of biosecurity and be equipped with the latest technology to control carbon dioxide, humidity, and a wide temperature range.



## Multi-purpose research facility

The multi-purpose research facility brings a variety of functions under one roof, including seed cleaning, drying and storage, plant and soil grinding and drying, and large food grade cool rooms. It will enable seamless processing of samples direct from the field and glasshouse.



## Outdoor growing area

The outdoor growing area will enable high-value trials focused on enabling the sustainable growth of Tasmania's agriculture sectors. A polytunnel and shadehouse will enable new research for Tasmania's protected cropping sector.

▼ Artist's impression of TIA's new agricultural science facility in Northern Tasmania.



These facilities will form part of the new Tasmanian Agricultural Precinct (TAP) at the University of Tasmania's Newnham campus. The TAP will enable the co-location of TIA, the Department of Natural Resources and Environment Tasmania and industry organisations.

We are combining agricultural science and research, water management, industry development and biosecurity functions to create a focal point for collaboration and excellence in Tasmania.

Researchers and students will undertake high-value trials focussed on enabling the sustainable growth of Tasmania's agricultural sectors. This may include pest and disease management trials under future climate scenarios, climate change research for agricultural crops, and supporting the development of new industries.

The facilities have been designed by architects at TERROIR in close collaboration with research and teaching staff at TIA.

TIA remains a statewide institute, with research and teaching staff in each region, and students able to study from either Hobart or Launceston.



▲ PhD candidate Akeem Taiwo and Technical Officer Stacey Pilkington at The Makers.

## The Makers

Toward the end of 2023, our research staff in North-West Tasmania moved into new laboratories that were purpose-built to support agricultural research.

The laboratories are located at The Makers, a new technology and innovation hub at the University of Tasmania's West Park Campus in Burnie.

This reimagined space brings together TIA, the College of Business and Economics' Tech Solutions Hub, a Business Incubator, and a public demonstration space.

Here, our researchers are working in purpose-built laboratories on projects of direct relevance to Tasmania's agricultural sector.

### The new facilities feature:

- Laminar flow cabinets: used to create sterile conditions for our work on fungal diseases that reduce crop yields and quality.
- Polymerase Chain Reaction (PCR) equipment: to investigate the genetic components of crops, and fungal disease pathogens.
- Agronomy lab: for our messier work such as analysing field samples.
- Growth cabinets: for growing plants under controlled environmental conditions such as temperature and humidity.

The laboratories were designed around principals of efficiency and safety, and are equipped all the relevant tools required to undertake high-quality agricultural research.



# Agricultural Systems Centre



## Agricultural Systems Centre

We use systems approaches to analyse complex challenges and find opportunities for improving Tasmania's agricultural and food industries.

Our activities focus on systems ranging from soil management and irrigation scheduling, to looking after water catchments, and developing policies and strategies to support sustainable and vibrant agriculture.

The TAS Farm Innovation Hub, which sits within the Agricultural Systems Centre, shares these challenges. The Hub seeks to mitigate the increasing risk of drought and other extreme climatic events. It was designed to help Tasmanian farmers and their communities to build relationships, access information and participate in activities to increase innovation in their businesses, care for land and waterways, and enhance community wellbeing.

## Career development program for agribusiness professionals

**Project:** Enable Program

**Funding body:** Australian Government Department of Agriculture Fisheries and Forestry through the PageUp Program

**Industry partners:** Rural Business Tasmania

**Research team:** Dr Saideepa Kumar, Professor Caroline Mohammed

Seventeen leaders in the Tasmanian agriculture sector graduated from an innovative career development program aiming to build practical skills and knowledge.

The Enable Program is a joint initiative of Rural Business Tasmania and the Tasmanian Institute of Agriculture and brings together owners and managers of agricultural businesses and people working in extension.

Participant and dairy farmer Shaelyn Rockliff said Enable gave her more confidence and knowledge in running the family business.

"The program has given me a greater understanding of things like business finance, succession planning, employee wages, different business structures, superannuation, banking and insurance," Ms Rockliff said.

"This new knowledge has helped me understand the family farm business in depth and I now have confidence to discuss these topics with others."

The TAS Farm Innovation Hub was a major sponsor of the program.

▼ Participants in the 2023 Enable Program hosted an extension workshop.





## Future proofing the Australian grains industry in a changing climate

**Project:** Understanding the impacts of waterlogging on barley, canola and faba bean

**Funding body:** Grains Research and Development Corporation (GRDC)

**Industry partners:** Victorian Department of Energy, Environment and Climate Action

**Research team:** Professor Meixue Zhou, Associate Professor Matthew Harrison, Dr Ke Liu, Dr Chenchen Zhao, Dr Peter Johnson



Research is underway to help Australian grain growers adapt to a changing climate and support future food security. It is estimated that waterlogging will increase by 400 per cent over the next 50 years.

The research team are conducting experimental treatments using diverse cultivars of barley, canola and faba bean to examine the severity and duration of waterlogging-related anaerobic stress.

Algorithms will be developed to predict the effects of waterlogging on the growth, development and yield of these crops, along with information about the benefit and cost of mitigation.

The research is led by Professor Meixue Zhou, who is internationally recognised for his research focussing on the discovery of new mechanisms for plants to deal with stresses (e.g. waterlogging, acidic soils and salinity), developing new breeding technologies, identifying key genes and germplasm for plant stress tolerance and integrating them to produce high-yielding commercial barley varieties.

GRDC manager of sustainable cropping systems south, Courtney Peirce, said the investment would increase awareness of both the direct and indirect impacts from waterlogging events and allow growers to make informed management decisions on how best to mitigate those impacts.

“

By 2026, we will have identified practices to accelerate recovery from waterlogging, such as crop nitrogen management. We will also be able to recommend scenarios to avoid severe waterlogging and quantify the costs and benefits associated with these practices.”

*Professor Zhou*

◀ Professor Meixue Zhou.

## Can Australia’s livestock industry transition to carbon neutrality by 2030?

**Project:** Carbon Storage Partnership

**Funding body:** Meat and Livestock Australia, Australian Wool Innovation Limited

**Industry partners:** University of Melbourne, Integrity Ag & Environment, Rabobank, The Mullion Group, Australian National University, RMCG, South Coast NRM, New South Wales Department of Primary Industries, CSIRO, Agrimix, Queensland University of Technology, QLD Department of Agriculture and Fisheries, Cloud Agronomics

**Research team:** Associate Professor Matthew Harrison, Professor Peter Grace, Associate Professor David Rowlings, Dr Rachelle Meyer, Oli Madgett, Dr Hayley McMillan, Dr Nahuel Pachas, Mr Nick Kempe

The \$26.8 million Carbon Storage Partnership (CSP) is an initiative of Meat and Livestock Australia that aims to achieve a carbon neutral Australian livestock sector by 2030.

Since 2020, more than 17,000 people have engaged with the project through workshops, field days, webinars, and farm trials. It is estimated that this engagement has removed more than 2.5 million tonnes of CO<sub>2</sub>-equivalents from the atmosphere, improving livestock production by 7,600 tonnes, contributing more than \$50 million to the economy.

A broad range of extension materials have been developed through the CSP and a carbon farming training package is under commercialisation. This professional development course will help to share information directly with industry and upskill industry professionals beyond the life of the project.

The research team are now conducting interdisciplinary modelling of case study farms across Australia, to determine the most appropriate interventions for farmers in different regions (e.g. temperate zone vs rangelands) and production systems (e.g. beef cattle vs sheep production).





▲ Sandra Knowles out on the farm with Woodbury farmer Chris Headlam.

## TAS Farm Innovation Hub

**Project:** Drought Resilience Adoption and Innovation Hub (TAS Farm Innovation Hub)

**Funding body:** Department of Agriculture Forestry and Fisheries and other contributing Australian Government grants

**Industry partners:** Beanstalk Agtech Pty Ltd; Biosecurity Tasmania; Bush Heritage Australia; Cradle Coast NRM; Cape Herbert Pty Ltd; Definium Technologies Pty Ltd; Highland Conservation Pty Ltd; Horticulture Innovation Australia; Hydro Tasmania; NRM North; NRM South; Private Forests Tasmania; Rural Business Tasmania Inc; Southern Cross University; Tasmanian Agricultural Productivity Group; Tasmanian Institute of Agriculture; Tasmanian Irrigation; Tasmanian Land Conservancy; TasFarmers; Tasmanian Women in Agriculture Inc; TasWater; The Derwent Catchment Project

**Delivery partners:** Ag Logic; Biosecurity Tasmania; Borlaug Technologies; Cradle Coast NRM; East Coast Primary Producers Association; NRM North; NRM South; Optimum Standard; Oysters Tasmania; Pinion Advisory; Private Forests Tasmania; Rural Business Tasmania Inc; Regenerative Agriculture Network Tasmania; The Derwent Catchment Project; Tasmanian Land Conservancy; TasFarmers; Flinders Aboriginal Resource Management Pty Ltd (FARM)

**TAS Farm Innovation Hub Staff:** Director Sandra Knowles; Deputy Director Professor Caroline Mohammed; Lead Knowledge Broker Dr Liana Williams; Business and Operations Manager Tony Vaea; Communications and Strategic Partnerships Manager Melissa Lewarn; Senior Industry Development and Extension Brian Field; Research Broker Professor Kathy Evans; Knowledge Broker Sophie Folder; Project Manager Hannah Lewis; Projects Coordinator Erin Hughes; Senior Adoption Officer Sue Hinton; Adoption Officer Maria Ortiz Rodriguez; Adoption Officer Alex Russell; Regional Soils Coordinator Belinda Nielsen; Events Coordinator Alison Demuth; Administration Officer Renai Skurrie

The TAS Farm Innovation Hub is one of eight Drought Resilience Adoption and Innovation hubs nationally funded through the Australian Government's Future Drought Fund.

The Hub is based at the Tasmanian Institute of Agriculture at the University of Tasmania and has staff in both the north and south campuses.

The past year has seen The Hub make significant progress in its work of helping farmers access critical information and drive innovation in their business to ensure financial, social and environmental resilience to drought and climate variability.

Director Sandra Knowles said The Hub had achieved great results in sharing knowledge and resources through working with its extensive network of industry and community partners.

"We've held several regional events throughout Tasmania with our partners on a number of topics to assist farmers access information and make decisions to prepare for the changing climate," Ms Knowles said.

"These included soil health and farm resilience field days in partnership with Cradle Coast NRM, events with livestock advisor Phil Graham on feed budgeting and stocking rate decisions, and pub chats in partnership with Optimum Standard and Regionality investigating agritourism as a means of building resilience to the impacts of a changing climate.

"We had some informative meet up events to explore existing and emerging tech solutions to key challenges facing Tasmanian farmers in the livestock, dairy, fruit and vegetable industries.

"These stemmed from the release of the Tasmanian Agriculture Technology Guide – developed by the Hub and Beanstalk AgTech with funding from AgriFutures Australia – which showcases 100 technologies across four key agricultural industries in Tasmania."

The Hub's Partner Forum in October 2023 was a success in bringing together around 50 of the Hub's closest stakeholders to share lessons and insights from hub-funded projects.

Looking to the future, the Australian Government has committed \$10 million from the Future Drought Fund for a short-term extension of all eight Drought Resilience Adoption and Innovation Hubs to 30 June 2025.

"This will ensure we can continue to support farmers and regional communities to access information and services while the government evaluates the drought hub program," Ms Knowles said.

"We are hopeful that review will result in a continuation of the hubs for many years to come."



▲ Professor Matthew Harrison.



## Tasmanian STEM Researcher of the Year

TIA Associate Professor Matthew Harrison was announced as the Premier's Tasmanian 2023 STEM Researcher of the Year.

The award acknowledged Dr Harrison's world-leading research in agricultural sustainability, climate change adaptation and greenhouse gas mitigation.



## Food Safety and Innovation Centre

We research and deliver innovative solutions to improve the safety, quality, functionality, and shelf life of food. Our team are acknowledged around the world for their expertise in the microbiology of food production systems.

Our work supports the food industry in Tasmania, nationally, and internationally, by providing innovation, actionable knowledge, and solutions to add value, safety, and sustainability to produce.

## Turning smoke tainted grapes into premium sparkling wine

**Project:** Beating smoke taint with sparkling wine

**Funding body:** Department of Natural Resources and Environment Tasmania

**Industry partners:** Wine Tasmania

**Research team:** Dr Samantha Sawyer, Professor Dugald Close, Associate Professor Nigel Swarts

Grapes that have been exposed to smoke often become unsuitable for wine making. This is due to undesirable sensory characteristics which have been described like drinking from an ash tray.

As the wine grape growing season coincides with the summer bushfire season, the risk of smoke taint has been identified by industry as a key challenge.

Dr Samantha Sawyer is leading a research trial to give wine makers an alternative option for producing premium sparkling wine from smoke tainted grapes, instead of discarding the harvest.

Over the 10-year trial, Dr Sawyer aims to identify the level of smoke taint that can be tolerated to produce a premium sparkling wine.

She is in the process of making sparkling wine from grapes that were intentionally subjected to smoke taint. The bottles will be aged on lees for up to 10 years, with bottles opened every few years to assess how smoke taint compounds change over time.

"When it comes to smoke taint, wine makers know that if it's bad enough to discard it, and they know if it's low enough it's fine, but it's that grey area in between where you've got some taint, what on earth do you do then? Perhaps you can't make a table wine, but you might be able to make a sparkling wine that you can be proud of," Dr Sawyer said.

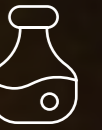
Sheralee Davis, CEO of Wine Tasmania, said vineyards are particularly susceptible to damage from smoke, a major risk in Tasmania's heavily forested landscape and with a changing climate.

"This research will help to investigate opportunities to minimise the impacts of smoke through sparkling wine production," Ms Davis said.

▼ Dr Samantha Sawyer harvesting wine grapes for the smoke taint trial.



Food Safety and  
Innovation Centre



▲ Dr Laura Rood in TIA's food safety laboratory.

## Food safety for pork industry

**Project:** The effects of pH on the shelf-life of vacuum-packed pork products

**Funding body:** Department of Agriculture – Science & Innovation Award for Young People

**Research team:** Dr Laura Rood

Food microbiologist, Dr Laura Rood, was announced as one of 12 recipients of the 2023 Australian Science and Innovation Awards for Young People in Agriculture, Fisheries and Forestry.

Dr Rood is studying how pH affects bacteria growth on pork and this research could lead to a longer shelf life for vacuum-packed meat.

The project follows industry observations that pork shoulder has a shorter shelf life than pork leg. Pork shoulder also has a significantly higher pH than leg and this could contribute to the difference in shelf life.

Dr Rood hopes to provide industry with more information about their products to assist with science-backed use-by-dates that result in more accurate labelling for consumers and less food wastage for producers.

## Ensuring safety of leafy green vegetables

**Project:** Pre-harvest sanitisation of leafy green vegetables

**Funding body:** Hort Innovation

**Research team:** Dr Alieta Eyles, Dr Laura Rood, Professor Tom Ross, Dr Jay Kocharunchitt, Professor John Bowman, Professor Roger Stanley

Leafy vegetables are an important component of a healthy diet, providing essential nutrients that can help prevent chronic diseases. In the past five-years, Australian production has increased by 40 per cent to almost 79,000 tonnes per year with a value of \$600 million.

There is a food safety risk associated with leafy vegetables, which are susceptible to microbial contamination as they are often eaten raw.

This project reviewed the published literature and industry practices on emerging and current pre-harvest risk management strategies with a focus on the feasibility of sanitising irrigation water and/or crops in the field to reduce the food safety risk.

The project concluded that there are limited opportunities for using pre-harvest sanitisation of the crop under normal conditions, but it could be recommended under high-risk conditions such as extreme weather events.



## Lasting legacy for food microbiologist

**Professor Tom McMeekin Prize**

A prize to encourage students into food microbiology or food safety research has been established in honour of the late Professor Tom McMeekin AO who passed away in 2021.

Acknowledged as one of the world's leading food microbiologists, Professor McMeekin's expertise established new systems of improving food safety around the world and is recognised as a pioneer in the development of predictive microbiology.

He was awarded an Officer of the Order of Australia in 2013 for his distinguished service to science.

The prize was established by a generous donation made by Professor John Bowman, TIA Centre Leader for Food Safety and Innovation. It will be awarded for the first time in 2024.



▲ The late Professor Tom McMeekin.





# Horticulture Centre



## Horticulture Centre

We work closely with established and emerging industries to support quality, productive and resilient cool-climate horticultural production systems.

Our research, development, demonstration, extension, and adoption activities focus on industry segments of high importance to Tasmania, including fruit and tree crops, wine grapes and wine, berries, industrial and extractive crops, and vegetables.

We are proud to lead projects of national significance for the industry, including the \$6.4 million Hort Frontiers project to sustainably grow horticulture value in cool climate Australia, and leading two national projects as part of the PIPS 4 Profit Program.

In Traditional Chinese Medicine, peony root has many medicinal uses, such as maintaining circulatory health and as an anti-inflammatory treatment.

The trial is looking at agronomic aspects that are likely to impact peony root chemistry, such as fertiliser inputs and the practice of flower bud removal, as well as evaluating various post-harvest processing techniques.

This research has the potential to open up a new market for Tasmanian producers bringing with it significant economic benefits for agriculture in this state.



We have done some preliminary studies of a limited number of varieties from five commercial growers in Tasmania and Victoria, and the results show there is potential for producing peony roots for TCM in Australia."

*Celia van Sprang*

## Can Tasmania produce quality peony roots for the Traditional Chinese Medicine market?

**Project:** Research Hub for Traditional Chinese Herbs

**Funding body:** Australian Education Management Group

**Industry partners:** Nanjing University of Chinese Medicine

**Research team:** PhD candidate Celia van Sprang

The Research Hub for Traditional Chinese Herbs was established with a clear goal in mind, to enable the development of a new agricultural industry for Tasmania based on production and processing of premium quality medicinal herbs.

The Hub supports seven PhD projects including a trial by Celia van Sprang to determine whether peony roots produced in Tasmania are comparable in quality to those produced in China.

► PhD candidate Celia van Sprang at the TIA Vegetable Research Facility.



## Productivity, Irrigation, Pests and Soils (PIPS) 4 Profit

PIPS 4 Profit is a flagship research program for the Australian apple industry. It was launched in 2023 with the goal of boosting production and profits for apple growers.

The program's aim is to accelerate the commercial implementation of best management practices that have the greatest potential for apple and pear growers to reap economic benefits while remaining sustainable.

TIA leads two projects as part of the national program.

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### Project: Optimising apple production systems

**Funding body:** Hort Innovation (PIPS 4 Profit) using the apple and pear industry levy funds from growers and matching funds from the Australian Government

**Industry partners:** Agriculture Victoria, DPIRD WA and DPI NSW

**Research team:** Associate Professor Nigel Swarts, Dr Sally Bound, Professor Dugald Close, Dr David Page, Michele Buntain

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This project will develop and evaluate strategies and technologies for efficient and reliable apple crop load management.

Associate Professor Nigel Swarts said tree training, pruning and crop load management are the most important yet difficult management strategies that determine the annual profitability of apple orchards.

Growers will be directly involved through hosting trial sites for research and participating in an economic impact analysis.



**We will be working closely with growers to test the profitability of new techniques for orchard renovation, crop thinning and canopy manipulation. The end target is producing quality fruit for consumers."**

*Dr Swarts*

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### Project: Sustainable soils for the apple industry

**Funding body:** Hort Innovation (PIPS 4 Profit) using the apple and pear industry levy funds from growers and matching funds from the Australian Government

**Industry partners:** DPI NSW, Pomewest, SA Fruit Producers and Fruit Help Victoria

**Research team:** Associate Professor Nigel Swarts, Dr Sally Bound, Professor Dugald Close, Dr Morag Glen, Michele Buntain

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This project aims to give growers a clearer understanding of the economic impacts of their orchard management decisions, particularly when it comes to soils.

"We know that sustainability of production and supply chains is really important to both growers and consumers, so that is a key focus for this project," Dr Sally Bound said.

The research team will work closely with growers to provide relevant and practical knowledge on improving efficiency through soil, water and nutrient management.



**We want to demonstrate an apple growing system that is not only good for the environment, but also improves efficiency and reduces costs for growers."**

*Dr Bound*

◀ Associate Professor Nigel Swarts.

▶ Dr Sally Bound.





## New research could transform Australia's pyrethrum industry

**Project:** Pyrethrum in half the time: genes and systems to annually crop a perennial

**Funding body:** Australian Research Council Grant - Early-Career Industry Fellowship

**Industry partners:** Botanical Resources Australia

**Research team:** Dr Tamiaka Pearce

The Australian pyrethrum industry is backing a new research project that aims to shorten the growing time of pyrethrum to fit within an annual cropping cycle. This research addresses a key industry challenge and has the potential to be revolutionary.

The long 18-month crop cycle of pyrethrum poses a challenge to the industry's profitability as it limits opportunities for growers and increases exposure to weeds and fungal diseases.

This project aims to almost halve the crop cycle to 10-months by generating new knowledge on the genetic and physiological drivers that enable early pyrethrum flowering.

Dr Kristin Groom, R&D Manager for Agriculture at Botanical Resources Australia said this is an important project for the pyrethrum industry.

"It will allow us to develop a production model that works better for farmer and increases the predictability and reliability of the crop," she said.

"Our experience shows there is a wide range of natural variation in our plants which can be harnessed with better understanding of the crop physiology and genetics."



We believe there is an opportunity to achieve an economically viable crop in just 10 months. This would have a transformational effect by reducing crop inputs, reducing the lag period without economic return for growers, and allowing pyrethrum to fit within a standard annual horticultural crop rotation."

*Dr Tamiaka Pearce*

◀ Dr Pearce.



▲ Ms Ashlea Schott, Research Production Manager at Bejo Tasmania and TIA Associate Professor Nigel Swarts.

## Helping Australian horticulture growers adapt to climate horticulture

**Project:** Sustainably growing horticulture value in cool climate Australia

**Funding body:** Hort Innovation

**Industry partners:** Bejo, Potatoes NZ, Simplot, Premium Fresh, Scottish Society for Crop Research, Botanical Resources Australia, Reid Fruits, Hansen Orchards, Costa Group, Driscoll's Australia, South Pacific Seeds and Fruit Growers Tasmania

**Research team:** Associate Professor Nigel Swarts, Professor Dugald Close, Dr Jason Scott, Professor Calum Wilson, Professor Alistair Gracie, Michele Buntain, Dr Robert Tegg

Being delivered through Hort Innovation and led and co-funded by the Tasmanian Institute of Agriculture, with support from national and international industry partners, this five-year project aims to grow cool climate horticulture production by 20 per cent.

Trial sites are being set up in Tasmania, and the research team will design experiments to be relevant across cool climate regions such as south-west Western Australia, the Adelaide Hills, South-East Victoria and high-altitude areas of New South Wales and South-East Queensland.

The program will span various sectors, including peas, potato, pyrethrum, vegetable seed, cherry and berry production.

Hort Innovation Chief Executive Officer Brett Fifield said the aim is to investigate what operational adjustments need to be made to farms in various regions to achieve maximum productivity in the face of unpredictable weather patterns.

"Researchers will look at fragile soil management, nutrient and water use. High-yield plants that can be picked early to maximise returns, and establishing protected cropping environments that offer stable, pest and disease-controlled growing environments are further priorities," Mr Fifield said.



▲ TIA Associate Professor Kara Barry.

## Prevention and control of blueberry rust

**Project:** Expanding crop protection options for control of blueberry rust

**Funding body:** Department of Natural Resources and Environment Tasmania (Agricultural Innovation Fund)

**Industry partners:** NSW Department of Primary Industries, Staphyt, Biosecurity Tasmania, Tasmanian Blueberry Rust Reference Group

**Research team:** Associate Professor Kara Barry, Ms Michele Buntain, Professor Kathy Evans, Ms Melinda Simpson

The main objective of this project is to improve industry access to crop protectants that are effective against blueberry rust. Preventing blueberry rust infection is key to limiting the impact of this disease on productivity and market access.

There are limited crop protection options currently available to help growers prevent blueberry rust infection, especially products that are acceptable to organically accredited growers.

Research led by TIA identified the new fungicide 'Nufarm Intervene' as an alternative crop protectant that is suitable for use in organic blueberry orchards.

A significant outcome was achieved 2023 with Nufarm Intervene being approved for use to suppress rust in blueberry and also inclusion on the export protocol for Tasmanian fruit. This opens up market access for organic blueberry growers to South Australian markets.

## Integrated pest management in raspberry and blackberry crops

**Project:** Integrated pest management approaches to address pest challenges in raspberry and blackberry

**Funding body:** Hort Innovation

**Industry partners:** NSW Department of Primary Industries, Agriculture Victoria, Costa Berries, Pinata Farms, Burlington Berries, Mountain Blue

**Research team:** Dr Steven Quarrell, Dr Jonathan Finch

TIA is leading a \$2.4 million national research program to boost integrated pest management in raspberry and blackberry crops.

Australian raspberries and blackberries are predominantly grown intensively under protected cultivation in polytunnels. This environment can be far less forgiving than traditional field production and has seen the emergence of new pests and increased pest pressure.

We are partnering with DPI NSW, Agriculture Victoria, and growers nationally to develop regionally specific integrated pest management (IPM) systems that consider the whole production system and the best combination of strategies to minimise chemical use.

The research will focus on three core strategies: conservation biocontrol, new biological control options, and crop management techniques such as trap cropping.



► Dr Steven Quarrell, TIA Entomologist.



# Livestock Production Centre



## Livestock Production Centre

We bring together interrelated research themes to enhance innovation, productivity and sustainability for temperate grass-fed livestock industries.

### Our activities centre around four key themes:

- Developing new practices to support the sustainable use of key inputs, such as water and nitrogen at the farm and catchment level.
- Developing and testing of plant varieties that can withstand climate change and challenges in rain-fed pastures.
- Adapting the grass-fed livestock system to meet changing societal needs in a way that respects both animal welfare and human well-being.
- Utilising novel feed additives and forages to mitigate greenhouse gas emissions from pasture-based livestock systems.

## Practical solutions for reducing nitrogen on dairy farms

**Project:** Dairy High 2

**Funding body:** Dairy Australia

**Industry partners:** Fonterra; Sea Forest

**Research team:** Dr James Hills, Dr Adam Langworthy, Mr Pieter Raedts, Ms Lesley Irvine, Mr Ben Noble, Associate Professor Richard Rawnsley, Mr Andrew Marshall

As part of the \$6.5 million Dairy High 2 partnership with Dairy Australia, we are focussing on feedbase research to help farmers maintain efficient, profitable, and sustainable pasture based dairy systems.

An ambitious target was set to help dairy farmers grow the same amount of dry forage matter from irrigated pasture (20 tonnes), produce the same amount of milk solids per hectare (2,000 kilograms), but halve the amount of nitrogen fertiliser (150 kilograms per hectare).

◀ Sunrise at TIA's Dairy Research Facility at Elliott.

▶ Mr Ben Noblen.

"We are looking for practical solutions to address this challenge and have transformed our Dairy Research Facility at Elliott into four farmlet systems over 32 hectares. This enables us to evaluate theories under real farm conditions," Dr James Hills, TIA Livestock Production Centre Manager, said.

Each farmlet is comprised of eight irrigated paddocks measuring approximately one hectare each. Four separate dairy herds will be managed over three grazing seasons to assess the impact of different pasture compositions and varying levels of nitrogen input ranging from 300 kilograms per hectare to no application.

Rodrigo Albornoz, National Lead in Feedbase and Nutrition at Dairy Australia said the focus on feedbase research is pivotal for the dairy industry's sustainability and prosperity.

"By striving to achieve ambitious targets while reducing nitrogen fertilizer usage, we are not only enhancing farm efficiency but also prioritizing environmental stewardship," Dr Albornoz said.

"The farmlet systems underscores our commitment to real-world experimentation, ensuring that the solutions we develop are practical and effective for farmers. This research stands as a testament to our dedication to advancing the dairy sector through innovation and evidence-based practices."

The cows entered the farmlets in August 2023. A monthly report is available for industry to access, including an overview of daily production, production to date, pasture performance, cow intake, nitrogen use, and summary comments.





## Putting virtual fencing technology to the test

**Project:** Welfare and productivity of dairy cows when managed with Halter technology

**Funding body:** Halter

**Research team:** Dr Megan Verdon, Associate Professor Richard Rawnsley

Senior Research Fellow at the Tasmanian Institute of Agriculture, Dr Megan Verdon, is investigating the application of Halter virtual fencing technology to manage dairy cows in Tasmanian conditions.

A six-week trial at TIA's Dairy Research Facility assessed the application of Halter virtual fencing technology to remotely allocate pasture and remotely herd cows to the dairy using virtual fencing technology. These were two beneficial applications of the technology identified by dairy farmers.

"My observations indicate that dairy cows can learn how to respond to a virtual fence within 24 hours. We had animals bring themselves to the dairy after using the technology for just four days. I was surprised by how quickly the animals adapted to this new way of being managed," Dr Verdon said.

The trial involved 160 lactating dairy cows managed in four groups. Two groups were managed using Halter's virtual herding technology without any temporary fencing. The other two groups were managed traditionally with electric fencing tape.

Charlie Baker, Vice President of Growth at Halter, said they were thrilled to be partnering with TIA in the world's most comprehensive study into virtual fencing with lactating dairy cows.

"Virtual fencing and virtual shifting is game-changing technology for pasture farmers to grow and harvest more grass; we're excited to see our technology help farmers run more productive and sustainable farms," Mr Baker said.

◀ Top: Cow fitted with Halter smart collar for virtual fencing.

◀ Bottom: Dr Megan Verdon.



▲ Perennial legume field day.

## Boosting pasture productivity with legumes

**Project:** Growing red meat productivity through the selection and establishment of perennial legumes

**Funding body:** TIA and the MLA Donor Company

**Industry partners:** The Livestock Productivity Partnership is a collaborative research and development partnership involving MLA Donor Company (MDC), TIA, NSW Department of Primary Industries, University of New England, University of Melbourne, and CSIRO.

**Research team:** Dr Rowan Smith, Gary Martin, Dr Beth Penrose, Dr Adam Langworthy, Emily Hall, Joanna Talbot

This five-year research project will help grow productivity in the red meat industry by identifying and establishing perennial legume species that can successfully persist to fill feed gaps and improve tolerance and productivity under waterlogging.

The project will trial different species and test how new sowing practices could advantage legumes during establishment.

The research team, led by Dr Rowan Smith, are working closely with local red meat producers to ensure the findings are relevant and valuable.

Tasmanian producer Simon Foster said maintaining the legume component in his pastures was an ongoing challenge.

The project takes a region-focused approach to improve the proportion of legumes in the high rainfall regions of the North-West Coast and low-medium rainfall region of the Tasmanian Midlands. A range of factsheets and regional updates were developed as part of this project.

“

We really need this research to give us practical and cost-effective ways to re-establish the legumes. Increasing the legume component in our pastures will absolutely increase the productivity and profitability of our grazing business.”

*Mr Foster*



## Preserving pasture for the future

**Project:** Australian Pastures Genebank – Temperate regeneration and characterisation program

**Funding body:** South Australian Research and Development Institute (SARDI) with funding from Meat and Livestock Australia (MLA), Dairy Australia (DA), Grains Research and Development Corporation (GRDC), Australian Wool Innovation (AWI), AgriFutures.

**Industry partners:** The Department of Natural Resources and Environment Tasmania

**Research team:** Dr Rowan Smith, Gary Martin

TIA has led the temperate grasses regeneration program for the Australian Pastures Genebank (APG) since 2014.

We germinate, grow, characterise, and harvest, clean and deposit seed of selected accessions. This helps to ensure the quality and diversity of pasture species germplasm is preserved for future breeding and research challenges.

During 2023-24, perennial ryegrass, Italian ryegrass, legumes, and herbs were grown out for the purpose of seed collection, with the aim of producing 15,000 seeds per accession.

The seed is deposited into the APG at SARDI in Adelaide. The samples at the APG are stored for long-term conservation and can also be used by plant breeders. A duplicate may also be sent to the Global Seed Vault in Svalbard, Norway.

▼ TIA Research Fellow Rowan Smith and Technical Officer Gary Martin.



## Increasing utilisation of non-replacement dairy calves

**Project:** Changes in the attitudes and behaviours of Tasmanian dairy producers towards management of non-replacement dairy calves

**Funding body:** Dairy Australia via the Dairy High 2 funding agreement

**Research team:** Shilpa Thakur (PhD candidate), Dr Megan Verdon

PhD candidate Shilpa Thakur conducted an anonymous survey of Tasmanian dairy farmers to understand management practices for non-replacement dairy calves in the 2022 season.

The survey results show that the number of non-replacement calves being reared for beef in Tasmania has increased in the past five years. The proportion of calves reportedly euthanized on farm or processed as bobby calves have both halved from 2018 to 2023.

The survey received 72 responses, which accounts for almost 20 per cent of Tasmanian dairy farms. Additionally, 22 in-depth interviews were conducted with dairy farmers in early 2023.

Farmers said the biggest barriers to rearing more calves include lack of infrastructure and lack of market opportunities. Approximately 75 per cent of farmers reported they do not have the infrastructure to rear more calves on their property. 70 per cent said they would keep more calves if it was easier to sell them to be reared by someone else.

The survey responses relate to the 2022 calving season, which was a period with higher-than-average beef prices.

▼ Calves at TIA's Dairy Research Facility.



▲ Pieter Raedts and Dr Richard Rawnsley with livestock emissions research equipment at TIA's Dairy Research Facility.

## Reducing methane emissions from livestock

**Project:** On-farm adoption of low emissions feed technologies for improved profitability of the Tasmanian livestock sector

**Funding body:** Department of Natural Resources and Environment Tasmania via the Agricultural Development Fund

**Industry partners:** Sea Forest, Fonterra

**Research team:** Associate Professor Richard Rawnsley, Associate Professor Matthew Harrison, Dr Ian Hunt, Dr Apeh Omede, Pieter Raedts

Research is underway to better understand the pathway to adoption for low-emissions feed additives in Tasmania's extensive livestock grazing systems.

The research focuses on achieving the optimal balance between on-farm methane abatement, productivity goals and animal wellbeing.

Several projects are underway or planned, including identifying delivery mechanisms for feeding asparagopsis in extensive grazing systems, transitional feeding of asparagopsis to sheep, and new product evaluations.

TIA Associate Professor Richard Rawnsley said TIA is enhancing its capacity to measure methane emissions on-farm and better understand the relationship between methane and on-farm productivity implications.

"Our technical capability was boosted in 2023 when we acquired a GreenFeed machine and a Super SmartFeed system – the first in Tasmania at the time. This enables us to measure gas fluxes of methane, carbon dioxide, oxygen, and hydrogen from individual animals," he said.



# Learning and Teaching

## Learning and teaching Centre

As a specialist research and teaching institute at the University of Tasmania, we are responsible for delivering undergraduate and postgraduate education in agriculture and food sciences.

Our courses are at the cutting-edge of agriculture and food sciences, applying sustainable production, value-adding and supply concepts and ideas from around the world. Students gain knowledge and skills to address local and global challenges and forge a successful path in a rapidly expanding industry. Our courses include:

- Bachelor of Agricultural Science with Honours (majors: Sustainable Agricultural Systems; Crop Science and Plant Health).
- Master of Agriculture and Food Sciences (Streams: Sustainable Agricultural Systems; Crop Science and Plant Health; Food Microbiology).
- Bachelor of Science (Microbiology; Food Innovation and Science).
- Graduate Diploma in Agribusiness (dairy or horticulture).



## Scholarships support students to pursue passion in sustainable agriculture

The future looks bright for agricultural science students who were awarded scholarships to pursue their passion of contributing to a sustainable future for Tasmania's agriculture and food sector.

Director of TIA, Professor Michael Rose, said the scholarships help to alleviate financial pressure and allow students to focus on their studies. Each year up to \$250,000 worth of scholarships are available to agricultural science students at the University of Tasmania.

Sophia Smith, of Launceston, received the Professor George Wade Scholarship in Agricultural Science. Sophia is passionate about environmental sustainability and is eager to learn more about the agricultural industry and how she can make a difference.

"By gaining this financial support I have been able to afford required books, fuel expenses and to buy myself a pair of boots that are easy to keep clean when moving between different farm visits, with biosecurity in mind," Sophia said.

▼ Kara Devlin received the Fruit Growers Tasmania Honours Scholarship.

▼ Sophia Smith received the Professor George Wade Scholarship in Agricultural Science.



## Celebrating our class of 2023 graduates

At the end of 2023, we celebrated the hard work of our Bachelor of Agricultural Science with Honours students at a graduation ceremony and prize presentation event.

Cassidy Dahlenburg celebrated her graduation in 2023 and was excited to have secured a graduate horticulturalist position with Costa Group working in Queensland.

"In our first year of studies, we went on a trip to the North-West and visited Costa Group along with some other agricultural businesses. When I visited Costa that was the moment that I decided that I'd like to work with them in the future because I could see the potential career opportunities," Cassidy said.

"I've focused on this goal throughout my studies by selecting Costa Group when providing industry examples for assignments and doing work experience with them in my third year."

"It feels amazing to have graduated, I'm looking forward to putting all the hard work into practice and getting some more on-farm and in-field work experience."



▲ Cassidy Dahlenburg celebrating her graduation.

▼ Class of 2023 Bachelor of Agricultural Science graduates.



▲ 2023 End of Year Honours Seminar.

## Honours students share research findings

Students in the fourth year of the Bachelor of Agricultural Science with Honours have an opportunity to present their research findings to an audience of peers, industry, and interested community members.

In 2023, presentations covered a diverse range of topics including supplying the Tasmanian whisky industry with oak barrels, mechanical pollination in onion seed crops, and biological control options for codling moth.

The seminar is a valuable way for students to present their research findings to industry and develop their professional network.

Kara Devlin shared an overview of her honours project that investigated biological control options for managing codling moth in Tasmanian apple orchards.

"I hope industry can take away from my research that biological control, when managed appropriately, can be a valuable component of integrated pest management in Tasmanian apple orchards," Kara said.

## Agricultural science graduates in high demand

With six jobs to every agricultural science graduate in Australia (2022), our graduates are spoilt for choice and taking their pick of exciting jobs around Australia.

"Young people have a real reason to be excited about the enormous potential and rewards of a career in agriculture. Our students have an opportunity to address some of the world's biggest challenges and opportunities using science, technology and business skills," Professor Michael Rose, TIA Director, said.

A degree in agricultural science develops sought-after skills that could see graduates working in diverse roles including on farms, at board tables, in classrooms, in laboratories, or advising governments.



## Getting a taste for agricultural science

Each year, TIA hosts a free camp to give year 11 and 12 students a taster experience of agricultural science and open their eyes to career opportunities.

Spaces in the 'Feed Your Mind, Feed the World' camp are in high demand, with more than 100 expressions of interest received in 2023 from local and interstate students.

Approximately one third of attendees go on to enrol in a Bachelor of Agricultural Science at the University of Tasmania.

The camp is held over three days in North-West Tasmania and includes visits to TIA's research farms and local businesses. It provides a valuable opportunity for students to develop a greater insight into the diversity of the agricultural sector and speak with people working in the industry, many of whom are graduates.

▼ Students visit Tasmanian agricultural businesses as part of the Feed Your Mind, Feed the World camp.

## Professional learning workshops for teachers

Tasmanian secondary school educators had an opportunity to attend a professional learning workshop to find out how they can engage students in STEM using agriculture.

During 2023, Dr Bianca Deans hosted three free workshops across the state at Hobart, Launceston and Burnie.

Teachers were provided with newly developed agricultural-themed STEM content and resources aligned with the Australian curriculum. They also heard from people working in Tasmania's agriculture sector about their study and career pathways and opportunities for ongoing collaboration such as classroom and field visits.

This was a fantastic opportunity to foster ongoing collaborative relationships between educators and people working in the agricultural sector, to empower learning experiences and inspire career pathways for Tasmanian students.



# Celebrating 60 years of agriculture

In 2023, we released a publication celebrating 60 years of Agricultural Science teaching and research at the University of Tasmania.

The 20-page publication 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 future.

Agricultural science at the University has achieved a great deal over the years and the record of achievement since the first intake of agricultural science students in 1963 has been enviable.

During this time, hundreds of students have graduated 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. Areas that stand out include the early research on pyrethrum and poppies for Tasmania, providing a basis for innovation in the agricultural industry that was adopted with tremendous agility.

We record a debt of gratitude to those who had the vision to establish the department more than 60 years ago, along with those who contributed to the numerous 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.

We hope this publication can stand as a testament to the many achievements, and be an inspiration for new generations of graduates.

The publication can be viewed on TIA's website: [utas.edu.au/tia/about/60-years-of-teaching-agricultural-science](https://utas.edu.au/tia/about/60-years-of-teaching-agricultural-science)

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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*

Professor 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.





# 2023 TIA Research Projects



Funding body	Industry partners	Research team	Title of project
AgriFutures	Beanstalk Agtech Pty Ltd	Ms SG Knowles; Mr G Gilmour; Mr C Connor	AgriFutures Tasmanian Agriculture Digital Literacy Project
Australian Centre for International Agricultural Research		AssocProf L Bonney; Dr RW Smith; AssocProf AEO Malau-Aduli; AssocProf PA Lane; Dr D Parsons	Developing productive and profitable smallholder beef enterprises in Central Vietnam
Australian Centre for International Agricultural Research	"Sinar Mas; PT Musi Hutan Persada; APRIL Group (Riau Andalan Pulp and Paper); Centre for Forestry Instrument Standard Assessment, Indonesia; NSW Department of Primary Industries"	Professor CL Mohammed; Dr M Glen; Dr R Harris; Dr DJ Turner; Dr R Warman	Managing Risk in South East Asian Forest Biosecurity
Australian Centre for International Agricultural Research	Department of Agriculture, Laos; Forestry	Dr R Warman; Dr S Lawson; Dr M Healey; Dr R Hayes; Professor H Beazley	Building effective forest health and biosecurity networks in SE Asia
Australian Research Council	Australian Wine Research Institute; AUSVEG Ltd; Bioplatforms Australia Ltd; Cotton Research and Development Corporation; Curtin University; Grains Research & Development Corporation; Griffith University; Horticulture Innovation Australia; La Trobe University; NUFARM AUSTRALIA LIMITED; Queensland Department of Agriculture & Fisheries; South Australian Research and Development Institute; University of California, Riverside; University of Queensland; Wine Australia	Professor N Mitter; Professor KJ Evans	BioClay Sustainable Crop Protection
Australian Research Council	"Western Sydney University; Zhejiang University; Nantong Ruihua Bioengineering Co Ltd; Flux Advance Scientific Co., Ltd; Seed Force Pty Ltd"	Professor SN Shabala; Professor M Zhou; AssocProf L Shabala; Dr ZH Chen; Professor G Zhang; Mr J Tang; Professor Z Huo; AssocProf F Zeng; Mr D Leah	Reducing environmental footprint by improving phosphorous use efficiency
Australian Research Council	Biomar Australia Pty Ltd	Prof JL Blanchard, D Cameron, Prof B Halpern, Prof CG Carter, Prof C MacLeod, Dr LR Adams, Dr PB Leith, Prof JP Bowman, KA Alexander, Dr B Penrose	Optimising feeds to support ecosystem-based aquaculture
Australian Research Council		Walker J, Hills JL	Smart Irrigation: integrating UAV soil moisture maps & variable rate sprays
Australian Research Council		Walker J, NG B, Hills JL	Towards an Active and Passive L- and P-band soil moisture satellite mission
Australian Wool Innovation Limited		Dr BJ Horton	Modelling management of sheep blowfly resistance to pesticides
Australian Wool Innovation Limited	CSIRO; University of Melbourne; Mullion Group; South Coast NRM	AssocProf MT Harrison; Dr KM Christie-Whitehead	BENEFITS: Biodiversity, Ecosystems, Net Emissions and Forestry ITerniSation of wool farms
AW Howard Memorial Trust		Dr AA Omede; Dr RP Rawnsley	Biochar-Bromoform interactions in the rumen
Botanical Resources Australia Pty Ltd		Dr T Pearce; Mrs S Pilkington; Dr JB Scott	Investigating the genetics of pyrethrum vernalisation
Botanical Resources Australia Pty Ltd		Dr N Tivendale	How does GA contribute to pyrethrum growth and development?

Funding body	Industry partners	Research team	Title of project
Botanical Resources Australia Pty Ltd		Dr JB Scott; Dr T Pearce	Mechanisms and spread of fungicide resistance in pyrethrum fungal pathogens
Charles Darwin University		Prof Roger Stanley; Dr Md Saifullah; Dr Dariush Zare	Northern Australia Food Technology Innovation (NAFTI)
Charles Sturt University		Dr A Yousif; Professor C Blanchard; AssocProf D Waters	Expanding options for Sorghum – 1
Cooperative Research Centre for Honey Bee Products	Tasmanian Bee Keepers	Dr SM Garland; Professor DC Close; Dr AP O'Grady	The bioactivity and stability of the honey from Leatherwood ( <i>Eucryphia lucida</i> )
CRC for High Performance Soils Ltd	"Federation University Australia; University of Southern Queensland; Birchip Cropping Group; Riverine Plains Farming Group; Southern Farming Systems; Burdekin Productivity Services"	Mr MA Hardie; Professor SC Cahoon; Mr SJ Edwards; Dr WJ Gillespie; Mr MJ Manion; Professor BH Kang; Professor CL Mohammed; Mr RWJ Ballard	'Smart' soil sensors
CRC for High Performance Soils Ltd		Dr M Glen; Professor CL Mohammed; Dr SR Corkrey	Microbial changes associated with improved or reduced soil health
CRC for High Performance Soils Ltd		Dr S Powell; Professor CL Mohammed; Mr MA Hardie; Dr P Young; AssocProf ND Swarts; Professor BH Kang; Dr MS Alam; Mr SJ Edwards; Mr C Boucher; Dr I Hunt	Smelling soil: eNose development (TIA led)
CRC for High Performance Soils Ltd		Mr MA Hardie; Professor CL Mohammed; Ms L Ryan; Professor SC Cahoon; Mr RWJ Ballard; Mr SJ Edwards; Mr MP Singline	Commercialising the 'Bilby' below ground wireless sensor node
CRC for High Performance Soils Ltd	Birchip Cropping Group; Burdekin Productivity Services; Riverine Plains Incorporated; Southern Farming Systems Ltd	Mr MA Hardie; Mr SJ Edwards; Mr C Boucher; Professor CL Mohammed; Ms L Ryan; Dr MS Alam	Commercialising the Penetrometer (Bandicoot)
CRC for High Performance Soils Ltd		Wang, L; Maya Alejandro, F; Breadmore, MC; Doyle, RB; Naidu, R; Kabir, A; Milla, R; Di Bella, L	Rapid field-based soil measurement approach using an integrated smartphone system
Dairy Australia Limited		Ms LD Irvine; Mr S Jones; Mr RS Borojevic	Dairy Farm Monitor Project Tasmania 2023
Dairy Australia Limited		Dr A Langworthy; Dr JL Hills	Soil Function in Varied Pasture Systems
Dairy Australia Limited		Dr JL Hills; Mr PJM Raedts; MJ Verdon; L Irvine; B Noble; R Rawnsley; A Marshall	Dairy High 2
Department of Agriculture		Dr LE Rood	The effects of pH on the shelf-life of vacuum-packed pork products
Department of Agriculture and Water Resources	Hansen Orchards; Reid Fruits; Seed Purity; South Pacific Seeds Pty Ltd	Professor AJ Gracie; Dr A Eyles; AssocProf GR Allen; Professor DC Close; Dr SR Quarrell; Dr JE Jones; AssocProf KM Barry	Novel technologies and practises for the optimisation of pollination within protected cropping environments

Funding body	Industry partners	Research team	Title of project
Department of Agriculture Water and the Environment	Beanstalk Agtech Pty Ltd; Biosecurity Tasmania; Bush Heritage Australia; Cape Herbert Pty. Ltd.; Cradle Coast NRM; Definium Technologies Pty Ltd; Derwent Catchment Natural Resource Management (NRM) Committee Inc; Highland Conservation Pty Ltd; Horticulture Innovation Australia; Hydro Electric Corporation; Optimum Standard (Aus) Pty Ltd; Rural Business Tasmania Inc; Southern Cross University; Southern Regional Natural Resource Management Association Inc; Tasmanian Irrigation; Tasmanian Women in Agriculture Inc	Ms SG Knowles; Professor CL Mohammed; Dr S Kumar; Mr B Field; Professor ME Jones; Mr RJ Anders; Professor VJ Higgins; Professor M Bryant; Dr M Amin; Mr SRJ Auckland; AssocProf LA Barmuta; Dr NR Barnes; Dr KM Beasy; Professor S Chuah; Professor SP D'Alessandro; Professor KJ Evans; Professor SG Ferguson; Professor SP Fraser; Professor AJ Gracie; AssocProf MT Harrison; Professor GJ Jordan; Professor BH Kang; Professor SI Kilpatrick; Professor K Norris; Professor JM O'Reilly-Wapstra; Dr TA Remenyi; Professor NE Stoeckl; Dr J Tian; Dr MD Wilson	Agricultural Innovation Hubs Program
Department of Agriculture Water and the Environment	Ag Logic Pty Ltd; Beanstalk Agtech Pty Ltd; Cradle Coast Authority; East Coast Primary Producers Association; Flinders Aboriginal Resource Management Pty Ltd; HEAL COUNTRY PTY LTD; Pinion Advisory; Private Forests Tasmania; Regenerative Agriculture Network Tasmania; Rural Business Tasmania Inc; Southern Cross University; Tasmanian Land Conservancy; The Derwent Catchment Project Inc; The Northern Tasmanian Natural Resource Management Assoc Inc.	Ms SG Knowles; Professor CL Mohammed; Dr S Kumar; Mr B Field; Professor ME Jones; Mr RJ Anders; Professor VJ Higgins; Dr M Amin; Mr SRJ Auckland; AssocProf LA Barmuta; Dr NR Barnes; Dr KM Beasy; Professor M Bryant; Professor S Chuah; Dr BJ Coleman; Professor KJ Evans; Professor SG Ferguson; Professor SP Fraser; Professor AJ Gracie; AssocProf MT Harrison; Professor GJ Jordan; Professor BH Kang; Professor SI Kilpatrick; Dr A Maiti; Professor K Norris; Professor JM O'Reilly-Wapstra; Professor NE Stoeckl; Dr J Tian; Dr MD Wilson	Drought Resilience Tasmania – Actionable Knowledge and Solutions for Sustainable Prosperity
Department of Agriculture Water and the Environment	Southern Regional Natural Resource Management Association Inc	Mr T Nation; AssocProf MT Harrison; Dr BJ Horton; Dr NR Barnes	Drought decision-support using the Farming Forecaster in Tasmania
Department of Agriculture Water and the Environment		Dr J Finch	Maximising the dual benefits of key ecosystem services and drought resilience in strategic revegetation programmes
Department of Agriculture Water and the Environment		Dr MS Alam; Mr SJ Edwards; Mr C Boucher; Mrs SJ Folder; Miss SJ Hinton	Adoption of Digital Agriculture Technologies for Climate Resilience Through Enhancing Farmers Participation, collaboration, and Accumulation of Users Experience from I4.0 Sensor Platforms.
Department of Agriculture Water and the Environment	Wine Australia; Wine Industry of Tasmania	Dr S Sawyer	Sniffing smoke taint-sensing phenols in the vineyard and the winery
Department of Education, Skills and Employment	Pure foods Tasmania; Forager Foods, Gilbert Street Kitchens, University of Queensland	Prof Roger Stanley; Dr Md Saifullah; Dr Dariush Zare	Boosting research capability to develop value-added products for the food and wood industries in regional areas.
Department of Industry, Innovation and Science	CRC for High Performance Soils Ltd; University of Newcastle	AssocProf RB Doyle; Professor CL Mohammed; Mr MA Hardie; Dr PG Neumeyer; Dr B Cotching; Professor SC Cahoon	CRC for High Performance Soils
Department of Industry, Innovation and Science	Mantiss Corporation PTY LTD; Meat and Livestock Australia	Professor T Ross; Dr LA Mellefont; Mr G Swanepoel; Dr C Kocharunchitt	Development of complementary preservatives for Australian meat products

Funding body	Industry partners	Research team	Title of project
Department of Industry, Science, Energy and Resources		AssocProf MT Harrison; Dr K Liu	Advanced machine cognition to segregate effects of climate from management at the landscape scale
Department of Natural Resources and Environment Tasmania	SeaForest; Fonterra	Dr RP Rawnsley; AssocProf MT Harrison; Prof JP Bowman; Dr I Hunt; Dr AA Omede; Mr PJM Raedts	On-farm adoption of low emissions feed technologies for improved profitability of the Tasmanian livestock sector
Department of Natural Resources and Environment Tasmania	Simplot Australia	Professor CR Wilson; Dr JB Scott; Professor AJ Gracie; Dr A Leo	Development of a decision support systems for management of potato diseases and estimating impact of changing climates
Department of Natural Resources and Environment Tasmania	SeaForest; Fonterra	Dr RP Rawnsley; AssocProf MT Harrison; Dr I Hunt; Dr AA Omede; Mr PJM Raedts	On-farm adoption of low emissions feed technologies for improved profitability of the Tasmanian livestock sector
Department of Natural Resources and Environment Tasmania	Wine Australia; Wine Tasmania	Dr S Sawyer; Professor DC Close; AssocProf ND Swarts	Beating smoke taint with sparkling wine : Climate Change Adaptation for the Tasmanian wine industry
Department of Natural Resources and Environment Tasmania	NSW Department of Primary Industries, Staphyt, Biosecurity Tasmania, Tasmanian Blueberry Rust Reference Group	AssocProf KM Barry; Dr BJ Horton; Dr JB Scott; Ms M Buntain; Dr T Pearce; Professor KJ Evans	New On-farm Strategies for the Prevention and Control of Blueberry rust in Tasmania
Department of Natural Resources and Environment Tasmania	NUFARM AUSTRALIA LIMITED; Wine Industry of Tasmania	Professor KJ Evans; Professor VJ Higgins; Dr NR Barnes; Ms M Buntain	Fast-tracking solutions for reliable and climate-responsive wine grape production.
Department of Natural Resources and Environment Tasmania	Botanical Resources Australia Pty Ltd	Dr T Pearce; Dr JB Scott; Mrs S Pilkington	Rapid Detection Systems for Pyrethrum Pathogens
Department of Natural Resources and Environment Tasmania	Extractas Bioscience; SunPharma Australia	Dr JB Scott; Dr T Pearce; Ms PE Weichelt	Control of weed poppies in commercial poppy production
Department of Natural Resources and Environment Tasmania	Halter New Zealand	Dr MJ Verdon; Dr RP Rawnsley; Dr I Hunt	
Department of Natural Resources and Environment Tasmania		Professor CL Mohammed; Dr S Powell; Mr C Boucher; Dr MS Alam; Mr SJ Edwards; Mr MA Hardie; Dr P Young; Ms CS Bensted	Microbes against climate change: A low cost electronic nose to support soil health and resilience via soil carbon sequestration
Department of Natural Resources and Environment Tasmania		Dr S Kumar; Professor SI Kilpatrick; Dr NR Barnes; Dr L Williams	Research-based monitoring, evaluation and learning to support the Farm Business Resilience Program in Tasmania

Funding body	Industry partners	Research team	Title of project
Essential Oils of Tasmania		Professor DC Close; Professor RC Menary; Ms CJ Claye	Boronia germplasm collection re-vitalisation
Fisheries Research & Development Corporation	DPIPWE - Abalone Industry Reinvestment Fund; Ralph's Tasmanian Seafood Pty Ltd; Reid Fruits	AssocProf ND Swarts; Dr JP Keane	FRDC Sea Urchin Fertiliser Project
Food Standards Australia New Zealand		Professor Tom Ross	Review of Standard 1.6.1, Schedule 27 and the Compendium of Microbiological Criteria for Food
Food Standards Australia New Zealand		AssocProf ND Swarts; Dr JP Keane	Review of Standard 1.6.1, Schedule 27 and the Compendium of Microbiological Criteria for Food
Grains Research & Development Corporation	Murdoch University; University of Haifa, Israel; Western Sydney University	Professor M Zhou; Dr C Zhao; Mr P Johnson	Increasing intrinsic heat tolerance of wheat through improved genetics in the source-sink relationship
Grains Research & Development Corporation		Professor M Zhou; AssocProf MT Harrison; Dr K Liu; Dr C Zhao; Dr PG Johnson	Understanding the impacts of waterlogging on barley, canola and fababean
Grains Research & Development Corporation	Department of Economic Development, Jobs, Transport and Resources	Dr R Armstrong; Dr N Wilhelm; Dr D Davenport; AssocProf P Sale; Dr E Tavakkoli; Dr BT Das; Mr MA Hardie; Dr PG Johnson	Understanding the amelioration processes of the subsoil application of amendments in the Southern Region
Halter New Zealand		Dr MJ Verdon; Dr RP Rawnsley	Welfare and productivity of dairy cows when managed with Halter technology
Horticulture Innovation Australia	"Biosecurity Tasmania; SARDI; Lenswood Co-op SA; Fruit Growers Tasmania "	Dr SA Bound; Ms M Buntain; Mr I Cover; Mr M Tarbath; Dr G Westmore; Mr P Crisp; Mr P James	Pilot Sterile Codling Moth Releases for the Apple industry
Horticulture Innovation Australia	Department of Jobs, Precincts and Regions	Mr G Lefoe; Dr SR Quarrell	Strengthening cultural and biological management of pests and diseases in apple and pear orchards
Horticulture Innovation Australia	Department of Jobs, Precincts and Regions	Dr I Goodwin; Dr SA Bound	Developing smarter & sustainable pear orchards to maximise fruit quality, yield & labour efficiency (AP19005)
Horticulture Innovation Australia	Botanical Resources Australia Pty Ltd	Dr JB Scott; Dr T Pearce; Ms PE Weichelt; Mrs S Pilkington	Development of regional risk models for fungal diseases in pyrethrum
Horticulture Innovation Australia		Dr SR Quarrell; Dr J Finch	Using pheromones and traps in the management of mirids and vegetable bugs
Horticulture Innovation Australia		Mr JE McPhee; Dr DC Monckton	Wide Span farming: economic and logistics feasibility study

Funding body	Industry partners	Research team	Title of project
Horticulture Innovation Australia	Apple & Pear Growers Association of South Australia; Department of Primary Industries and Regional Development, Western Australia; Department of Primary Industries NSW	AssocProf ND Swarts; Dr SA Bound; Professor DC Close; Ms M Buntain; Mr MA Hardie; Dr M Glen	Improved Australian apple and pear orchards soil health and plant nutrition
Horticulture Innovation Australia	Bejo, Potatoes NZ, Simplot, Premium Fresh, Scottish Society for Crop Research, Botanical Resources Australia, Reid Fruits, Hansen Orchards, Costa Group, Driscoll's Australia, South Pacific Seeds and Fruit Growers Tasmania	AssocProf ND Swarts; Professor DC Close; Dr JB Scott; Professor CR Wilson; Professor AJ Gracie; Ms M Buntain; Dr RS Tegg	Sustainably growing horticulture value in cool climate Australia
Horticulture Innovation Australia	Australian Mushroom Growers Association	Dr WM Gill; Professor DC Close	Pest and disease management for the Australian mushroom industry
Horticulture Innovation Australia	NSW Department of Primary Industries, Agriculture Victoria, Costa Berries, Pinata Farms, Burlington Berries, Mountain Blue	Dr SR Quarrell; Dr J Finch; Ms M Buntain; Dr I Hunt	Integrated pest management approaches to address pest challenges in raspberry and blackberry
Horticulture Innovation Australia		Dr A Eyles; Dr LE Rood; Professor T Ross; Dr C Kocharunchitt; Professor JP Bowman; Professor RA Stanley	Pre-harvest sanitisation of leafy green vegetables
Horticulture Innovation Australia	Department of Primary Industries NSW; Fruit Help Pty Ltd; Lenswood Cold Stores Cooperative Society Limited; PomeWest (Agricultural Produce Commission), Agriculture Victoria, DPIRD WA	AssocProf ND Swarts; Dr SA Bound; Professor DC Close; Dr M Glen; Ms M Buntain	PIPS4 Profit: Sustainable Soils for the apple industry
Horticulture Innovation Australia	Department of Energy, Environment and Climate Action; Department of Primary Industries and Regional Development, Western Australia; Department of Primary Industries NSW; Fruit Help Pty Ltd	AssocProf ND Swarts; Dr SA Bound; Professor DC Close; Dr DE Page; Ms M Buntain	Optimising apple Production Systems through PIPS 4 Profits
Horticulture Innovation Australia	Agriculture Victoria Services Pty Ltd	Dr I Goodwin; Dr SA Bound	Pear production systems
Horticulture Innovation Australia	Agriculture Victoria Services Pty Ltd	Mr G Lefoe; Dr SR Quarrell; Dr RJ Warren; Dr I Hunt	PIPS4 Profit – Pest and Disease Management
Horticulture Innovation Australia	NZ Plant and Food Research	Professor CR Wilson, Dr RS Tegg, Dr A Eyles and Dr S Baldwin (NZ Plant and Food)	Mechanisms and manipulation of resistance to powdery scab in potato roots
JM Roberts Charitable Trust		Professor M Rose; Dr PB Leith; Dr S Kumar	JM Roberts Seed Funding for Sustainable Agriculture
Marine Bioproducts CRC	Department of Natural Resources and Environment Tasmania	Dr H Walker; AssocProf ND Swarts; Dr JP Keane; Mr I Dutton	Assessing the benefits of sea urchin processing waste as a soil ameliorant in commercial field trials
Martha Jane Medical		Professor DC Close; Professor RC Menary; Dr SM Garland	Understanding and manipulating environmental factors for targeted cannabinoid production
McCain Foods Ltd		Prof Roger Stanley; Dr Samatha Sawyer; Dr Naomi Vinden	Shelf-stable foods and vegetables
Meat and Livestock Australia	CSIRO-Commonwealth Scientific & Industrial Research Organisation; Department of Primary Industries NSW; Integrity Ag & Environment; RM Consulting Group; South Coast Natural Resource Management; The Mullion Group; University of Melbourne	AssocProf MT Harrison; Dr KM Christie-Whitehead; Professor MJ Hovenden	Sustainable pathways to CN30

Funding body	Industry partners	Research team	Title of project
Meat and Livestock Australia	CSIRO and NSW DPI; Simon Foster; Merton Vale	Dr R Haling; Dr RW Smith; Dr B Penrose; Mr GI Martin; Dr R Hayes; Dr C Harris; Dr C Murray; Dr R Simpson; Dr A Stefanski	Serradellas for new environments
Meat and Livestock Australia	MLA Donor Company (MDC); NSW Department of Primary Industries; University of New England; University of Melbourne; CSIRO	AssocProf MT Harrison; Dr LR Turner; Dr KM Christie-Whitehead; Mr PD Ball	NEXUS project: exploring profitable, sustainable livestock businesses in an increasingly variable climate
Meat and Livestock Australia Donor Company	NSW Department of Primary Industries, University of New England, University of Melbourne, and CSIRO.	Dr RW Smith; Mr GI Martin; Mr PD Ball; Dr B Penrose; Dr A Langworthy	Growing red meat productivity through the selection and establishment of perennial legumes
Meat and Livestock Australia	University of Tasmania	AssocProf MT Harrison; Dr LR Turner	NEXUS project part 2: involve and partner activities
Meat and Livestock Australia		Dr C Kocharunchitt; Professor T Ross; Professor JP Bowman; Dr JC Pagnon	Development of shelf life models for beef, lamb and pork
Quantal Bioscientific Pty Ltd		Prof T Ross; Prof JP Bowman	PhD Scholarship top-up
Meat and Livestock Australia		Dr C Kocharunchitt; Professor T Ross; Professor JP Bowman; Dr JC Pagnon; Dr LA Mellefont	Application of glucose as a novel approach for shelf-life extension of vacuum-packed chilled sheep meats
Seed Force Pty Ltd		Professor M Zhou; Mrs R Lovell	Barley waterlogging tolerance improvement program
Simplot Australia		Professor CR Wilson; Mrs A Wilson; Dr RS Tegg	Germinate to Exterminate – Simplot
South Australian Research and Development Institute	SARDI; MLA, Dairy Australia; AgriFutures; AWI; State Departments of Agriculture	Dr RW Smith; Mr GI Martin	Australian Pastures Genebank - Temperate Regeneration and Characterisation Program
Tasmanian Quality Meats		Dr LE Rood; Dr C Kocharunchitt	Shelf-life validation of different vacuum-packed lamb products for 90 days at 0C
Australian Education Management Group	Nanjing University of Chinese Medicine, Marleen Herbs of Tasmania, Gould's Natural Medicine Organic Herb Farm	Professor DC Close; Dr A Eyles	Research Hub for Traditional Chinese Herbs
Wine Australia		AssocProf ND Swarts; Dr JE Jones	Science to inform decision making between synthetic and alternative nitrogen sources in vineyards: Top-up scholarship and operating
Wine Australia		AssocProf KM Barry; Dr MR Sosnowski; Professor AJ Gracie	Management and diagnosis of grapevine trunk disease in vineyards and nurseries Reproductive Biology, Seed Development and pyrethrin Accumulation in Pyrethrum

# Higher Degree Research Projects

Student	Research title	
Bowen Butchart	Dominique	Pathways to a Carbon Neutral Livestock Industry by 2030
Olivier	Sandra Angeline	Novel Microbes in Fermentations
Mertes	Eric Franz	The Effect of Pre-Harvest Tree Management on Fruit Quality and Phenolic Chemistry in Sweet Cherry During Post-Harvest Storage
McCrory	Claire Maree	Extending the Shelf-life of Cherries
Targett	Peter James	Investigating plant disease mechanisms of infection of Carrot Crown Rot and Pea Collar Rot
Zou	Meilin	Investigation of Recombination and Segregation Distortion in Barley
Vajaha	Nageswara Rao	Better Crop Management through Seasonal Climate Forecasting: More Options for Farmers to Manage Climate Risks
Mohammed	Reham Adel M	Abundance and Diversity of Arbuscular Mycorrhizal Fungi in Soils from Native and Agricultural Tasmanian Landscapes
Steel	Elya Yogita	The Impact of Education on Attitude Change for Improving Livelihoods of Small Holder Livestock Farmers in North West Vietnam
Walker	Brianna Artemis Ridley	Green Manuring, Biofumigation and Soil Microbial Ecology in Tasmanian Vegetable Cropping
Block	Zachary John	Response of Escherichia coli to Temperature Stress Relevant to the Meat Cold Chain
Lim	Meng Yong	Understanding Differences in Shared Viral Disease Impacts on Honey Bee Health
Chapman	Theresa	Diversity and Function in Cover Crops
Law	Hui Meng	Traditional Chinese Medicinal Herbs: Ecophysiology of growth and development in Tasmania
Dong	Yumo	The Economic Feasibility of Wide Span Controlled Traffic System in Vegetable Industry
Zhou	Dianfan	Towards more Sustainable Greenhouse Production of Fresh Vegetables
Ospina Rios	Sandra Liliana	Effect of Rearing Environment on Heifer Stress Resilience, Productivity and Welfare Around their 1st Calving
Thakur	Shilpa	Increasing utilisation of non-replacement dairy calves in Australia
Holzel	Nadine	Fruit Quality and Bioactive Properties of Sweet Cherry ( <i>Prunus avium</i> L.)
Krauss	Laurie Louise	Weeds in Rotational Cropping
Tatalo	John	Analyzing the Performance of High Value Agricultural Cash Crops (HVAPs) in Solomon Islands – Cocoa and Coffee;(Case study for Guadalcanal & Malaita Provinces)
Green	Izaak Benjamin	Drought Resilience in Tasmania – Comparison of farmers approaches and applications of drought resilience techniques and management plans
Indrayadi	Heru	Understanding and Managing Biosecurity Threats Posed to Indonesian Forest Plantation and Horticultural Industries by <i>Ceratocystis manginecans</i>
Blaesbjerg	Natasha Cecilie Hoelk	Orchard Floor Management in Tree Crops
Liu	Chongyue	Traditional Chinese Medicinal herbs as new crops: Growing systems and quality
Chen	Tianxiao	Physiological Mechanism Dissection and QTL Mapping of Salinity Tolerance in Rice ( <i>Oryza sativa</i> L.)
Cheng	Jingye	Explore Gibberellin (GA)-related Genes for Barley Productivity
Qu	Mei	Understanding the Role of Boron in Plant Responses to Soil Salinity
Toomik	Elerin	Understanding Potential Mechanisms of Red Meat Spoilage
Attar	Al Zahraa	Oxidative Stress Signaling in Halophytes
Nishshanka Achchi Kankanamalage	Inosha Hansamali	Nitrogen Fertiliser use in the Tasmanian Dairy Industry: Managing N surpluses to support a more sustainable future
Chapagain	Ranju	Estimating Crop Model Uncertainty in Agricultural Systems: A comprehensive examination of APSIM for potato production in Australia
Tacconi	Francesco	The Benefits and Limits of Agricultural Diversity
Poosarla	Pooja Rajasri	Mechanisms and Spread of Fungicide Resistance in Pyrethrum Fungal Pathogens
He	Zhaoyuan	Intensive Silvopasture: Spatial benefits
Jiang	Chenting	Machine Learning the Soil Water Function
Pham-Kieu	My	Improving Environmental Sustainability of Beef Value Chains in Australia Through Carbon Accounting
Zhan	Xin	Nutritional Benefits of Sustainably Farmed Salmon
Schmidt	Katharina	Exploring the Annual and Geographical Variability of Leatherwood Honey through its Chemical Profile, Bioactivity, and Physico-chemical Properties
Frimpong	Justice Okona	Processing and analysing Enose data
Dilena	Enrico	Manipulating Environmental Factors for Targeted Cannabinoid Production
Zelew	Demlie Gebresellassie	Quantifying the Economic and Ecosystem Services of Agriculture: a spatial-statistical approach based on regional soil water flux predictions

Student	Research title	
Chen	Xi	Nutrient and Environmental Control of Root and Shoot Architecture
Goward	Laura Elizabeth	The Physiology of Flowering and Seed Production in Yellow Serradella ( <i>Ornithopus compressus</i> L.) and French Serradella ( <i>Ornithopus sativus</i> Brot.)
Kay	Phillip Martin	Microbial Changes Associated with Improved or Reduced Soil Health.
Muleke	Albert Aluvaga	Adaptations for Raising the Productivity and Profitability of Irrigated Grains Enterprises under Future Climates
French	Philippa Anne	Science to Inform Decision Making Between Synthetic and Alternative Nitrogen Sources in Vineyards
Sinhalagoda Arachchilage	Chiranthika Arunodi Sinhalagoda	Developing Tools to Screen Native Pepper ( <i>Tasmannia lanceolata</i> ) for Resistance against <i>Phytophthora cinnamomi</i> Dieback and Drought Tolerance
Ogungbuyi	Michael Gbenga	Improving Real-time Pasture Management using Remote Sensing, Machine Learning and Big Data Analytics
Fawale	Olumide Samson	Role of Brewers Spent Grain (BSG) Arabinoxylan as a Prebiotic for Good Gut Health, Reduction of Inflammation and Non-communicable Diseases
Bilotto	Franco Maximiliano	The Nexus between Profitability, Productivity, and Greenhouse Gas Emissions of Livestock Businesses under Increasingly Variable Climates
Su	Zhouyang	Locus-specific Relationships between Biotic and Abiotic Tolerance Determined using near Isogenic Lines in Wheat and Barley
Buziak	Dorota	Traditional Chinese Medicinal (TCM) Herbs: Understanding quality through sensory and plant chemical analysis
Dai	Shilin	Adaptation and quality of <i>Polygonatum sibiricum</i> as a herb for Traditional Chinese Medicine
Bondad	Jamina Gabrielle Javier	Evaluating Climate Change Response and Potential Distribution of Cereal Rust Pests in Australia
Jiang	Zheng	Ecophysiological Suitability of <i>Polygonatum Odoratum</i> to Tasmania: Novel horticultural growing systems
Niu	Yanan	Genetic Studies on Lodging Resistance of Cereal Crops
Wu	Yufei	Traditional Chinese Medicinal herbs as new crops: Growing systems and quality
Benedetti Vallenari	Pia Francesca	Smart-Farm data for dairy cows
Guo	Ce	Identification of New Candidate Genes for Acid Soil Tolerance in Barley
Wunderlich	Georgia Clementine Rowntree	Useful microbes in equine guts
Nepal	Swagat	Investigating low emissions feed technologies for improved profitability of the Tasmanian livestock sector.
Siddique	Abu Bakar	Stomatal functions in crop tolerance to combined abiotic stresses
Chen	Jianbo	Alleviate Barley Waterlogging Damage
Ijaz	Usman	Cloning of a Scald Resistance Gene in Barley
Van Sprang	Celia	Chinese Medicinal Herbs as New Crops: Growing systems and quality
Ivsic	Caroline Marie Scheel	Guard cell electrophysiology
Taiwo	Akeem Owolabi	Managing Botrytis in Wine Grapes
Khan	Fahad	Stomatal Functions in Crop Tolerance to Combined Abiotic Stresses
Khan	Fahad	Understanding and Manipulating Protein Synthesis in Fava Beans to Produce High Protein Fava Beans for an Alternative Protein Future
Ash	Rebekah	Aligning sustainable farm system interventions and policy under our future climate
Ahmed	Muhammad Zeshan	Barley yellow dwarf resistance in wheat
Heng	Wan Sin	Rapid Bacteria Detection
Thapa	Ronika	Pink Rot of Potato, a Reemerging Problem
Scofield	Claire	Cherry quality and protected cropping
Bhattarai	Ganesh	Commercial Carbon Accounting Case Study
Lohani	Shreeya	Water Accountability and Sustainability
Nguyen	Thi Thanh Hien	Diffuse to Confuse
Shahriar	Saleh Ahmed	Blueberry rust epidemiology
Ahmad	Ibrahim	Biochar-Bromoform interactions in rumen
Anand	Uttpal	G2E for Verticillium control
Hussain	Md Ashraf	Nitrogen transformation in Dairy Pasture
Ahmed	Jaher	Conservation Biological Control in Rubus
Zhao	Haochen	Canola waterlogging tolerance
Sharmita	Onusha	How do crops adapt to waterlogging
Fearnley	Jessica Caroline	Carbon sequestered in apple production
Kerstan	Tony Andrew	The Green Drought – Pasture that survives but does not thrive under Centre Pivot Irrigation. An investigation of irrigation efficiency and effectiveness on Tasmanian dairy farm soils.

# 2023 TIA Publications

## Journal Article

Elerin Toomik (Agriculture and Food Systems); Laura Rood (TIA - Research Institute); John Bowman (TIA - Research Institute); Chawalit Kocharunchitt (Agriculture and Food Systems); "Microbial spoilage mechanisms of vacuum-packed lamb meat: a review", *International Journal of Food Microbiology*, Elsevier Science Bv

Georgia Wunderlich (Agriculture and Food Systems); Michelle Bull (Agriculture and Food Systems); Thomas Ross (TIA - Research Institute); Michael Rose (TIA - Research Institute); Belinda Chapman (Agriculture and Food Systems); "Understanding the microbial fibre degrading communities & processes in the equine gut", *Animal Microbiome*, BioMed Central Ltd

Sergey Shabala (TIA - Research Institute); "Functional Plant Biology celebrates its 50th volume", *Functional Plant Biology*, CSIRO Publishing

Fatemeh Rasouli; Ali Kiani-Pouya (TIA - Research Institute); Ali Movahedi; Yuan Wang; Leitong Li; Min Yu; Mohammad Pourkheirandish; Meixue Zhou (TIA - Research Institute); Zhonghua Chen; Heng Zhang; Sergey Shabala (TIA - Research Institute); "Guard Cell Transcriptome Reveals Membrane Transport, Stomatal Development and Cell Wall Modifications as Key Traits Involved in Salinity Tolerance in Halophytic *Chenopodium quinoa*", *Plant and Cell Physiology*, Oxford Univ Press,

Xi Chen; Steven Smith (Biological Sciences); Sergey Shabala (TIA - Research Institute); Min Yu; "Phytohormones in plant responses to boron deficiency and toxicity", *Journal of Experimental Botany*, OXFORD UNIV PRESS

Lin Tao; Xiaoyi Xiao; Qiuyu Huang; Hu Zhu; Yingming Feng; Yalin Li; Xuewen Li; Zhishan Guo; Jiayou Liu; Feihua Wu; Niloufar Pirayesh; Sakil Mahmud; Ren Shen; Sergey Shabala (TIA - Research Institute); Frantisek Baluska; Lei Shi; Min Yu; "Boron supply restores aluminum-blocked auxin transport by the modulation of PIN2 trafficking in the root apical transition zone", *Plant Journal*, Wiley

Md Hasanuzzaman; Meixue Zhou (TIA - Research Institute); Sergey Shabala (TIA - Research Institute); "How does stomatal density and residual transpiration contribute to osmotic stress tolerance?", *Plants*, MDPI AG

Y Wang; G Chen; F Zeng; Z Han; C Qiu; M Zeng; Z Yang; F Xu; D Wu; F Deng; S Xu; C Chater; A Korol; Sergey Shabala (TIA - Research Institute); F Wu; P Franks; E Nevo; Z Chen; "Molecular evidence for adaptive evolution of drought tolerance in wild cereals", *The New Phytologist*, Wiley on behalf of New Phytologist Trust

Faisal Alraddadi (Tasmanian Institute of Agriculture (TIA)); Thomas Ross (TIA - Research Institute); Shane Powell (Agriculture and Food Systems); "Evaluation of the microbial communities in kefir grains and kefir over time", *International Dairy Journal* Elsevier Sci Ltd

Dipon Sarkar (TIA - Research Institute); Ian Hunt (Agriculture and Food Systems); Cameron Macdonald (TIA - Research Institute); B Wang; John Bowman (TIA - Research Institute); Mark Tamplin (TIA - Research Institute); "Modelling growth of *Bacillus cereus* in paneer by one-step parameter estimation", *Food Microbiology*, Academic Press Ltd Elsevier Science Ltd

Stacey Pilkington (TIA - Research Institute); Jason Scott (TIA - Research Institute); Tamieka Pearce (TIA - Research Institute); Yu Tan; Frank Hay; "Confirmation of *Itersonilia perplexans* infecting *Pyrethrum* (*Tanacetum cinerariifolium*) in Australia", *Plant Disease*, Amer Phytopathological Soc

Jing Zhang; Mao-Feng Chai; Sergey Shabala (TIA - Research Institute); Ke-Hua Wang; Jin-Lin Zhang; "Editorial: Adaptation mechanisms of grass and forage plants to stressful environments", *Frontiers in Plant Science*, Frontiers

Huilong Zhang; Aishuang Hu; Haiwen Wu; Jianfeng Zhu; Jingbo Zhang; Tielong Cheng; Sergey Shabala (TIA - Research Institute); Huaxin Zhang; Xiuyan Yang; "Integrated metabolome and transcriptome analysis unveils novel pathway involved in the fruit coloration of *Nitraria tangutorum* Bobr", *BMC Plant Biology*, Springer Nature

Juan Zhu; Hui Zhou; Yun Fan; Yu Guo; Mengna Zhang; Sergey Shabala (TIA - Research Institute); Chenchen Zhao (TIA - Research Institute); Chao Lv; Baojian Guo; Feifei Wang; Meixue Zhou (TIA - Research Institute); Rugen Xu; "*HvNCX*, a prime candidate gene for the novel qualitative locus *qS7.1* associated with salinity tolerance in barley", *Theoretical and Applied Genetics*, Springer

Feifei Wang; Zhenxiang Zhou; Rong Liu; Yangyang Gu; Song Chen; Rugen Xu; Zhong-Hua Chen; Sergey Shabala (TIA - Research Institute); "In situ mapping of ion distribution profiles and gene expression reveals interactions between hypoxia and Mn<sup>2+</sup>/Fe<sup>2+</sup> availability in barley roots", *Plant Science*, Elsevier

Jingye Cheng; Camilla Hill; Yong Han; Tianhua He; Xingguo Ye; Sergey Shabala (TIA - Research Institute); Ganggang Guo; Meixue Zhou (TIA - Research Institute); Ke Wang; Chengdao Li; "New semi-dwarfing alleles with increased coleoptile length by gene editing of *gibberellin 3-oxidase 1* using CRISPR-Cas9 in barley (*Hordeum vulgare* L.)", *Plant Biotechnology Journal*, Wiley

Al Attar; Talaat Ahmed; Atsushi Kato; Imen Saadaoui; Sergey Shabala (TIA - Research Institute); "Understanding impact of heat, drought, and salinity stresses on growth and physiological attributes of *Chenopodium album* under field conditions", *Plant Growth Regulation*, SPRINGER

Wan Heng; Snehal Jadhav; Maiken Ueland; Robert Shellie (TIA - Research Institute); "Rapid detection of *Escherichia coli* in dairy milk using static headspace-comprehensive two-dimensional gas chromatography", *Analytical and Bioanalytical Chemistry*, Springer Nature

Jim Luong; Ronda Gras; Yujuan Hua; Guangyu Liu; Robert Shellie (TIA - Research Institute); "Fingerprinting and identification of isolated plastic polymers with pyrolysis comprehensive two-dimensional gas chromatography and flame ionization detection", *Analytical and Bioanalytical Chemistry*, Springer Nature

Cengiz Kaya; Sergey Shabala (TIA - Research Institute); "Sodium hydrosulfide-mediated upregulation of nitrogen metabolism improves drought stress tolerance in pepper plants", *Environmental And Experimental Botany*, Pergamon-Elsevier Science Ltd

Jiayou Liu; Liu Yang; Ying Wen; Yuxuan Li; Sergey Shabala (TIA - Research Institute); Jie Zhang; Won-Yong Song; "The roles of abscisic acid and ethylene in cadmium accumulation and tolerance in plants", *Plant and Soil*, Springer Nature

Fatemeh Ahmadi (TIA - Research Institute); A Samadi; E Sepehr; A Rahimi; Sergey Shabala (TIA - Research Institute); "Potassium homeostasis and signaling as a determinant of Echinacea species tolerance to salinity stress", *Environmental and Experimental Botany*, Pergamon-Elsevier Science Ltd

Lixia Zheng; Qianqian Xu; Gu Gong; Yonglin Liao; Min Yu; Sergey Shabala (TIA - Research Institute); Wensheng Chen; Weijian Wu; "Nicotiana tabacum as a dead-end trap for adult Diaphorina citri: A potential biological tactic for protecting citrus orchards", *Frontiers in Plant Science*, Frontiers

Xian Yu; Richard Wilson (Central Science Laboratory); Alieta Eyles (TIA - Research Institute); Sadegh Balotf; Robert Tegg (TIA - Research Institute); Calum Wilson (TIA - Research Institute); "Enzymatic Investigation of <i>Spongospora subterranea</i> Zoospore Attachment to Roots of Potato Cultivars Resistant or Susceptible to Powdery Scab Disease", *Proteomes*, MDPI

Adriana Dutra-Nobre (Chemistry); Wesley Olivier (Chemistry); Bianca Deans (Agriculture and Food Systems); Nathan Kilah (Chemistry); Fernando Maya Alejandro (Chemistry); Jason Smith (Chemistry); Alexander Bissemer (Chemistry); "Intraspecific variation in the terpene profiles of *Dodonaea viscosa*", *Asian Journal of Organic Chemistry*, Wiley-VCH Verlag GmbH & Co. KGaA

Rowan Smith (TIA - Research Institute); Beth Penrose (TIA - Research Institute); Adam Langworthy (TIA - Research Institute); A Humphries; C Harris; M Rogers; P Nichols; R Hayes; "Strawberry clover (*Trifolium fragiferum*): current status and future role in Australian agriculture", *Crop and Pasture Science*, CSIRO Publishing

W Badgery; G Li; A Simmons; J Wood; Rowan Smith (TIA - Research Institute); D Peck; L Ingram; A Cowie; A Humphries; P Hutton; E Winslow; R Eckard; "Reducing enteric methane of ruminants in Australian grazing systems – a review of the role for temperate legumes and herbs", *Crop and Pasture Science*, CSIRO Publishing

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Marc Freestone; Celeste Linde; Nigel Swarts (TIA - Research Institute); Noushka Reiter; "Asymbiotic germination of <i>Prasophyllum</i> (Orchidaceae) requires low mineral concentration", *Australian Journal of Botany*, CSIRO Publishing

Shaoqing Ge; Shoule Wang; Wenxuan Mai; Ke Zhang; Mohsin Tanveer (TIA - Research Institute); Lei Wang; Changyan Tian; "Characteristics and acidic soil amelioration effects of biochar derived from a typical halophyte <i>Salicornia europaea</i> L. (common glasswort)", *Environmental Science and Pollution Research*, Springer Heidelberg

Shiv Bolan; Hasintha Wijesekara; Mohsin Tanveer (TIA - Research Institute); Vanessa Boschi; Lokesh Padhye; Madhuni Wijesooriya; Lei Wang; Tahereh Jasemizad; Chensi Wang; Tao Zhang; Jorg Rinklebe; Hailong Wang; Su Lam; Kadambot Siddique; M Kirkham; Nanthi Bolan; "Beryllium contamination and its risk management in terrestrial and aquatic environmental settings", *Environmental Pollution*, Elsevier Sci Ltd

Lei Wang; Mohsin Tanveer (TIA - Research Institute); "Editorial to the Special Issue "Eco-Physiological and Molecular Basis of Stress Tolerance in Plants", *Biology-Basel*, MDPI

Xinxin Song (TIA - Research Institute); Robert Bramley (Tasmanian Institute of Agriculture (TIA)); Katherine Evans (TIA - Research Institute); "A method to position a simple strip trial to improve trial efficiency and maximise the value of vineyard variability for decision-making", *OENO One*, Institut des Sciences de la Vigne et du Vin

N Huynh; Matthew Wilson (Agriculture and Food Systems); Roger Stanley (TIA - Research Institute); "Extending the shelf life of raspberries in commercial settings by modified atmosphere/modified humidity packaging", *Food Packaging and Shelf Life*, Elsevier BV

Vishal Ratanpaul; Roger Stanley (TIA - Research Institute); Charles Brennan; Rajaraman Eri; "Manipulating the kinetics and site of colonic fermentation with different fibre combinations – a review", *International Journal of Food Science and Technology*, Wiley

Ke Liu (TIA - Research Institute); Matthew Harrison (TIA - Research Institute); H Yan; L Liu; Holger Meinke (College Office - CoSE); G Hoogenboom; B Wang; B Peng; K Guan; J Jaegermeyr; E Wang; F Zhang; X Yin; S Archontoulis; L Nie; A Badea; J Man; D Wallach; J Zhao; A Benjumea; S Fahad; X Tian; W Wang; F Toa; Z Zhang; R Rotter; Y Yuan; M Zhu; P Dai; J Nie; Y Yang; Y Zhang; Meixue Zhou (TIA - Research Institute); "Silver lining to a climate crisis in multiple prospects for alleviating crop waterlogging under future climates", *Nature Communications*, Nature Pub. Group

Rose Zhang; Baxter Massey; Ulrike Mathesius; Victoria Clarke (TIA - Research Institute); "Photosynthetic Gains in Super-Nodulating Mutants of <i>Medicago truncatula</i> under Elevated Atmospheric CO<sub>2</sub> Conditions", *Plants-Basel*, MDPI

Ruixiang Zhao; Jane Symonds; Seumas Walker; Konstanze Steiner; Christopher Carter (Sustainable Marine Research Collaboration); John Bowman (TIA - Research Institute); Barbara Nowak (Sustainable Marine Research Collaboration); "Relationship between gut microbiota and Chinook salmon (*Oncorhynchus tshawytscha*) health and growth performance in freshwater recirculating aquaculture systems", *Frontiers in Microbiology*, Frontiers Media Sa

L Field; L Hemsworth; E Jongman; Ian Hunt (Agriculture and Food Systems); M Verdom; "Observations on the effects of non-maternal adult contact on the behavioural patterns of pre-weaned dairy heifers", *Animal Production Science*, CSIRO Publishing

Megan Verdon (TIA - Research Institute); "A review of factors affecting the welfare of weaned replacement heifers in pasture-based dairy production systems", *Animal Production Science*, CSIRO Publishing

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Susan Kilpatrick (TIA - Research Institute); Sarah Fischer (Management); Jessica Woodroffe (Peter Underwood Centre for Educational Attainment); Nicoli Barnes (TIA - Research Institute); Olivia Groves; Kylie Austin; "A Whole-of-Rural-Community Approach to Supporting Education and Career Pathway Choice", *Australian and International Journal of Rural Education*, SPERA

Hafiz Ali; Maimoona Ilyas; Muhammad Zaheer; Akhtar Hameed; Kamran Ikram; Waqas Khan (Agriculture and Food Systems); Rashid Iqbal; Tahir Awan; Muhammad Rizwan; Abd Mustafa; Mohamed Elshikh; "Alleviation of chromium toxicity in mung bean (<i>Vigna radiata</i> L.) using salicylic acid and <i>Azospirillum brasilense</i>", *BMC Plant Biology*, BMC

Shichao Chen; Wenfeng Liu; Julien Morel; David Parsons (Agriculture and Food Systems); Taisheng Du; "Improving yield, quality, and environmental co-benefits through optimized irrigation and nitrogen management of hybrid maize in Northwest China", *Agricultural Water Management*, Elsevier

Marc Benoit; Guillaume Martin; Lucille Steinmetz; Dephne Ulukan; Gun Bernes; Christopher Brock; Anne De La Foye; Myriam Grillot; Marie-Angelina Magne; Tabea Meischner; Marie Moerman; Leonardo Monteiro; Bernadette Oehen; David Parsons (Agriculture and Food Systems); Riccardo Primi; Lisa Schanz; Christoph Winckler; Bertrand Dumont; "Interactions between animal enterprises and marketing strategies shape organic multispecies farming systems", *Agronomy for Sustainable Development*, Springer Nature

S Bolan; H Wijesekara; D Amarasiri; T Zhang; P Ragályi; M Brdar-Jokanović; M Rékási; J Lin; L Padhye; Haochen Zhao (Agriculture and Food Systems); L Wang; J Rinklebe; H Wang; K Siddique; M Kirkham; N Bolan; "Boron contamination and its risk management in terrestrial and aquatic environmental settings", *Science of The Total Environment*

S Bolan; H Wijesekara; A Ireshika; T Zhang; M Pu; G Petruzzelli; F Pedron; D Hou; L Wang; S Zhou; Haochen Zhao (Agriculture and Food Systems); K Siddique; H Wang; J Rinklebe; M Kirkham; N Bolan; "Tungsten contamination, behavior and remediation in complex environmental settings", *Environment International*

Alec Mackay; Kathryn Hutchinson; John Moore; Mike Dodd; Yue Lin; Paul Muir; Chris Smith; Ronaldo Vibart; Franco Bilotto (Agriculture and Food Systems); "Are observed rates of productivity compared to model predictions indicating negative climate impacts in perennial plants?," *Journal of New Zealand Grasslands*, New Zealand Grassland Association

Jun Deng; Tian Sheng; Xuefen Zhong; Jiayu Ye; Chunhu Wang (TIA - Research Institute); Liying Huang; Xiaohai Tian; Ke Liu (TIA - Research Institute); Yunbo Zhang; "Delayed Leaf Senescence Improves Radiation Use Efficiency and Explains Yield Advantage of Large Panicle-Type Hybrid Rice", *Plants-Basel*, MDPI

Yuqing He; Jie Lian; Lan Wang; Lu Tan; Fahad Khan (Agriculture and Food Systems); Yanhua Li; Hongxia Wang; Celine Rebours; Danxiang Han; Qiang Hu; "Recovery of nutrients from aquaculture wastewater: Effects of light quality on the growth, biochemical composition, and nutrient removal of *Chlorella sorokiniana*", *Algal Research-Biomass Biofuels and Bioproducts*, Elsevier

Fahad Khan (Agriculture and Food Systems); Sana Malik; Ayesha Shahid; Amna Siddiqui; Syed Musharraf; Hui Zhu; Nuha Alkhattabi; Munazza Cull; Muhammad Mehmood; "Characterization of a newly isolated cyanobacterium <i>Trichocoleus desertorum</i> BERC08 as a potential feedstock for the algal biorefinery", *Biomass Conversion and Biorefinery*, Springer Heidelberg

Bo Li; Wei Hua; Shuo Zhang; Le Xu; Caixian Yang; Zhanwang Zhu; Ying Guo; Meixue Zhou (TIA - Research Institute); Chunhai Jiao; Yanhao Xu; Setsuko Komatsu; "Physiological, Epigenetic, and Transcriptome Analyses Provide Insights into the Responses of Wheat Seedling Leaves to Different Water Depths under Flooding Conditions", *International Journal of Molecular Sciences*, Mdpi

Dana Campbell; Brian Horton (TIA - Research Institute); "The necessity of pen replication to account for and understand the impacts of social dynamics on individual laying hen behavior", *Frontiers in Animal Science*, Frontiers

Ryan Warren (Agriculture and Food Systems); Theotime Colin; Stephen Quarrell (TIA - Research Institute); Andrew Barron; Geoff Allen (TIA - Research Institute); "Impact of isolated and unattractive crops on honeybee foraging: A case study using radio frequency identification and hybrid carrot seed crops", *Agricultural and Forest Entomology*, Wiley

Sandra Olivier (Agriculture and Food Systems); Michelle Bull; Mikael Strube; Robert Murphy; Thomas Ross (TIA - Research Institute); John Bowman; Belinda Chapman; "Long-read MinION™ sequencing of 16S and 16S-ITS-23S rRNA genes provides species-level resolution of <i>Lactobacillaceae</i> in mixed communities", *Frontiers In Microbiology*, Frontiers Media Sa

P West; David Ratkowsky (TIA - Research Institute); "A state-space growth model for <i>Eucalyptus pilularis</i> in subtropical Australia, fitted with and without seemingly unrelated regression", *Australian Forestry*, Taylor & Francis Australia

Barry Rowe (TIA - Research Institute); "Liming agricultural soils in Tasmania, Australia, from 1940 to 2020: acidity of the soils and the sources, production, quality control, transport and current patterns of lime use", *Papers and Proceedings of the Royal Society of Tasmania*, The Royal Society of Tasmania

Usman Zulfiqar; Fahih Haider; Muhammad Maqsood; Waqas Mohy-Ud-Din; Muhammad Shabaan; Muhammad Ahmad; Muhammad Kaleem; Muhammad Ishfaq; Zoya Aslam; Babar Shahzad (Agriculture and Food Systems); "Recent Advances in Microbial-Assisted Remediation of Cadmium-Contaminated Soil", *Plants-Basel*, MDPI

Usman Zulfiqar; Fahih Haider; Muhammad Ahmad; Saddam Hussain; Muhammad Maqsood; Muhammad Ishfaq; Babar Shahzad (Agriculture and Food Systems); Muhammad Waqas; Basharat Ali; Muhammad Tayyab; Syed Ahmad; Ilyas Khan; Sayed Eldin; "Chromium toxicity, speciation, and remediation strategies in soil-plant interface: A critical review", *Frontiers in Plant Science*, Frontiers Media Sa

Aysha Fleming (TIA - Research Institute); Simon Fielke; Emma Jakku; Yuwan Malakar; Stephen Snow; Stephanie Dickson; Rachel Hay; Mahesh Prakash; Sigrid Tijs; Gillian Cornish; "Co-designing Climate Services for Agriculture - reflecting on successes, setbacks and early lessons learned", *Rural Extension and Innovation Systems Journal*, Australasia Pacific Extension Network-Apen

## Reports

Matthew Harrison (TIA - Research Institute); Brian Horton (TIA - Research Institute); Nicoli Barnes (TIA - Research Institute); "Co-developing and improving digital tools for increased drought resilience with, and for Tasmanian farmers : Project update"

Matthew Harrison (TIA - Research Institute); J Whitehead; Darren Turner (Geography, Planning, and Spatial Sciences); J Guerschman; Celia Leverton (TIA - Research Institute); Peter Ball (TIA - Research Institute); M Ogungbuyi; "Future Drought Fund – Natural Resources Management Project : Milestone 5"

Matthew Harrison (TIA - Research Institute); P DeVoi; Byeong Kang (Information and Communication Technology); Hanyu Wei (Information and Communication Technology); C Jiang; M Monjardino; Albert Muleke (TIA - Research Institute); Rowan Eisner (TIA - Research Institute); Daniel Rodriguez (TIA - Research Institute); Stephanie Chappell (TIA - Research Institute); Victor Sadras (Biological Sciences); "Improving irrigated crop profitability March 2023", Grains Research and Development Corporation

Matthew Harrison (TIA - Research Institute); K Christie; Nicoli Barnes (TIA - Research Institute); Franco Bilotto (Agriculture and Food Systems); "NEXUS Involve & Partner: impacts of biochar supplementation on livestock productivity, profitability and GHG emissions : Milestone 4", Meat and Livestock Australia Limited

Brian Horton (TIA - Research Institute); Matthew Harrison (TIA - Research Institute); "Farming Forecaster: TIA Progress Report 2 : Development of new pasture ecotypes in the model GrassCro", University of Tasmania

Albert Muleke (TIA - Research Institute); Matthew Harrison (TIA - Research Institute); Maria Yanotti (Economics); Rowan Eisner (TIA - Research Institute); "Improving productivity and profitability of irrigated grain enterprises under changing climate : summary of work today", GRDC

Matthew Harrison (TIA - Research Institute); Whitehead Jason; "Operationalising satellite and drone imagery to improve decision-making: a case study with regenerative grazing", Future Drought Fund

Karen Christie; Matthew Harrison (TIA - Research Institute); "Sustainable Pathways to CN30 Milestone 7"

Matthew Harrison (TIA - Research Institute); Rowan Eisner (TIA - Research Institute); "Optimising farm scale returns from irrigated grains: maximising dollar return per megalitre of water: Final Report"

Matthew Harrison (TIA - Research Institute); Rowan Eisner (TIA - Research Institute); "Optimising farm scale returns from irrigated grains: maximising dollar return per megalitre of water: Appendices"

Brian Horton; Matthew Harrison (TIA - Research Institute); Nicoli Barnes (TIA - Research Institute); "Co-developing and improving digital tools for increased drought resilience with, and for Tasmanian farmers"

Muhammad Saifullah (TIA-Research Institute), Roger Stanley (TIA-Research Institute), Dariush Zare (TIA-Research Institute) , Pablo Juliano, Warren Hunt; "Technology Options for Shelf-stable Food Processing and Storage in Northern Australia", Charles Darwin University

Warren Hunt, Roger Stanley (TIA-Research Institute) , Pablo Juliano, Paul Burke, Ian Forrest, Will Evans, Tom Dawkins; "Capability and Capacity Gap Analysis for Shelf-stable food Manufacturing in Northern Australia", Charles Darwin University

Warren Hunt, Roger Stanley (TIA-Research Institute), Pablo Juliano, Steven Greenland, Matt Christie, Mark Schleyer; "A roadmap for shelf-stable food manufacturing in Northern Australia", Charles Darwin University

Steven Greenland, Ninh Nguyen, Warren Hunt, Steve Rogers, Roger Stanley (TIA-Research Institute), Pablo Juliano; "NT Shelf-stable Food Products: Market Opportunity Analysis", Charles Darwin University



## Preprints

Michael Ogungbuyi (Agriculture and Food Systems); Juan Guerschman; Andrew Fischer (Ecology and Biodiversity); Richard Crabbe; Caroline Mohammed (TIA - Research Institute); Peter Scarth; Phil Tickle; Jason Whitehead; Matthew Harrison (TIA - Research Institute); "Quantifying Grassland Biomass and Regenerative Grazing Using Satellite Remote Sensing and Machine Learning", MDPI

Daniel Wallach; Taru Palosuo; Henrike Mielenz; Samuel Buis; Peter Thorburn; Senthold Asseng; Benjamin Dumont; Roberto Ferrise; Sebastian Gayler; Afshin Ghahramani; Matthew Harrison (TIA - Research Institute); Zvi Hochman; Gerrit Hoogenboom; Mingxia Huang; Qi Jing; Eric Justes; Kurt Kersebaum; Marie Launay; Elisabet Lewan; Ke Liu; Qunying Luo; Fasil Mequanint; Claas Nendel; Gloria Padovan; Jørgen Olesen; Johannes Pullens; Budong Qian; Diana-Maria Seserman; Vakhtang Shelia; Amir Souissi; Xenia Specka; Jing Wang; Tobias Weber; Lutz Weihermüller; Sabine Seidel; "Parameter variability makes a major contribution to uncertainty of crop phenology simulations", Cold Spring Harbor Laboratory

Artur Steiner; Jane Farmer; Peter Kamstra; Karen Carlisle; Anthony McCosker; Susan Kilpatrick (TIA - Research Institute); "Online Mental Health Forums and Rural Resilience: Mixed Methods Study and Logic Model (Preprint)", JMIR Publications

Kathryn Ogden; Susan Kilpatrick (TIA - Research Institute); Shandell Elmer (Nursing); "Examining the nexus between medical education and complexity: a systematic review to inform practice and research", Research Square Platform LLC

Franco Bilotto (Agriculture and Food Systems); Karen Christie-Whitehead (TIA - Research Institute); Bill Malcolm; Nicoli Barnes (TIA - Research Institute); Brendan Cullen; Margaret Ayre; Matthew Harrison (TIA - Research Institute); "Costs of transitioning to net-zero emissions under future climates", Research Square Platform LLC

Matthew Harrison (TIA - Research Institute); Albert Muleke (TIA - Research Institute); Rowan Eisner; Maria Yanotti (Economics); Peter deVoil; Shah Fahad; Fei Wang; Puyu Feng; Carla Ferreira; Daniel Forster; Xionghui Gao; Ke Liu (TIA - Research Institute); Jianguo Man; Lixiao Nie; Jiangwen Nie; Zhiming Qi; Narasingha Shurpali; Weilu Wang; Rui Yang; Xiaogang Yin; Feng Zhang; Yunbo Zhang; Jin Zhao; "Clarifying confusions over carbon conclusions", *Global Environmental Change Advances*, Wiley

Xi Chen; Yanqi Ru; Hirokazu Takahashi; Mikio Nakazono; Sergey Shabala (TIA - Research Institute); Steven Smith (Biological Sciences); Min Yu; "Single-cell transcriptomic analysis of pea shoot development and cell-type-specific responses to boron deficiency", Cold Spring Harbor Laboratory

Kathryn Ogden; Susan Kilpatrick (TIA - Research Institute); Shandell Elmer (Nursing); "Examining the nexus between medical education and complexity: a systematic review to inform practice and research", Research Square Platform LLC

Waleed Khan; Sergey Shabala (TIA - Research Institute); Xueqing Zhang; Fangbin Cao; Beth Penrose (TIA - Research Institute); Meixue Zhou; "Quantitative trait loci for mineral accumulation efficiency and biomass production in barley under different levels of zinc supply", Research Square Platform LLC

Estee Tee; Stephen Fairweather; Hanh Vo (Biological Sciences); Chenchen Zhao (TIA - Research Institute); Andrew Breakspear; Sachie Kimura; Melanie Carmody; Michael Wrzaczek; Stefan Broer; Christine Faulkner; Jaakko Kangasjärvi; Zhong-Hua Chen; Barry Pogson; Kai Chan; "Cell-specialized chloroplast signaling orchestrates photosynthetic and extracellular reactive oxygen species for stress responses", Cold Spring Harbor Laboratory

Sugat Bajracharya; Lalu Kadel; Ujjal Tiwari; Ganesh Bhattarai (Agriculture and Food Systems); Himalaya Subedi; Min Pun; Mandira Shrestha; "Opportunities and Barriers for Using Climate Information Services for Resilient Agriculture: Insights from the Baseline Study in Chitwan, Nepal"

Chenting Jiang (Agriculture and Food Systems); Marcus Hardie (TIA - Research Institute); Quan Bai; David Page; "Evaluating HYDRUS-ID for Inverse Estimating Parameters of the van Genuchten-Mualem model from Daily Soil Moisture and Weather data", Authorea

Matthew Harrison (TIA - Research Institute); Franco Bilotto (Agriculture and Food Systems); Karen Christie-Whitehead (TIA - Research Institute); Nicoli Barnes (TIA - Research Institute); "Operationalising net-zero with biochar: black gold or red herring?", *Trends in Food Science & Technology*

Jaabir Hussein; Franco Bilotto (Agriculture and Food Systems); Carla Ferreira; Ke Liu (TIA - Research Institute); Philip Omondi; Jason Sircely; DAMARIS WACHIRA-MBUI; Matthew Harrison (TIA - Research Institute); "From crisis to opportunity: climate change benefits livestock production in Somalia", Authorea

Jamina Gabrielle Bondad (Agriculture and Food Systems); Jeremy Whish; Susan Sprague; Angela de Wuow; Kara Barry; Matthew Harrison (TIA - Research Institute); "Modelling crop management and environmental effects on the development of *Leptosphaeria maculans pseudothecia*", Research Square Platform LLC

## Chapters

Susan Kilpatrick (TIA - Research Institute); Jane Farmer (UTAS Centre for Rural Health); Sherridan Emery (Peter Underwood Centre for Educational Attainment); "Social Enterprises and Regional Cities: Inclusive Data Gathering Techniques to Capture Multiple Perspectives", SAGE Publications Inc.

C Adams; C Jones; "Identifying personal beliefs and values through group sensemaking", The Susan Rowland Group

Susan Kilpatrick (TIA - Research Institute); Sarah Fischer (Management); Nici Barnes; "Comparison of Student Support Services in Four Universities", Springer Nature

Sarah Fischer (Management); Susan Kilpatrick (TIA - Research Institute); "Review of Support Provided by Student Support Services", Springer Nature

Sarah Fischer (Management); Susan Kilpatrick (TIA - Research Institute); "Review of Schemes for Admitting a More Diverse Student Body in Higher Education", Springer Nature

Damon Thomas (Education); Susan Kilpatrick (TIA - Research Institute); "Why Tasmania Has a Particular Need to Increase Educational Participation", Springer Nature

Adnan Shah; Mohsin Tanveer (TIA - Research Institute); Asad Abbas; Anis Shah; Yasir Niaz; Muhammad Waqas; "Proteomics and Its Scope to Study Salt Stress Tolerance in Quinoa", Springer Nature

Coralie Saless-Smith; Steven Driever; Victoria Clarke (TIA - Research Institute); "Modifying mesophyll conductance to optimise photosynthesis in crops", Burleigh Dodds Science Publishing

Samuel Gómez-Martínez; Apeh Omede (Agriculture and Food Systems); Manuel Gómez-García; Héctor Puente; Lucía Pérez; Ana Carvajal; Héctor Argüello; "Sustainable Alternative to Antimicrobial Uses: New Probiotics", Springer Nature

Hassan Ahmed (TIA - Research Institute); Peichen Hou (Agriculture and Food Systems); Waqas Khan (Agriculture and Food Systems); "Portulaca oleracea under Salt Stress", Taylor & Francis

Peichen Hou (Agriculture and Food Systems); Mei Qu; Ping Yun (TIA - Research Institute); Aixue Li; Hassan Ahmed (TIA - Research Institute); Yuanying Peng; Waqas Khan (Agriculture and Food Systems); Liping Chen; "Avena sativa under Drought Stress", Taylor & Francis

Peichen Hou (Agriculture and Food Systems); Ping Yun (TIA - Research Institute); Mei Qu; Aixue Li; Hassan Ahmed (TIA - Research Institute); Waqas Khan (Agriculture and Food Systems); Bin Luo; "Portulaca oleracea under Drought Stress", Taylor & Francis

Waqas Khan (Agriculture and Food Systems); Fatima Amanullah; Hassan Ahmed (TIA - Research Institute); Peichen Hou (Agriculture and Food Systems); "Avena sativa under Toxic Elements", Taylor & Francis

M Noor; A Niazi; F Joyia; Waqas Khan (Agriculture and Food Systems); M Arshad; M Farooq; "Regulation of cell signaling in response to abiotic stresses in plants",

Mohammad Hossain; Md Tahjib-Ul-Arif; Sopnil Ahmed Jahin; Abu Siddique; Mumtarin Haque Mim; Sharif Ar-Raffi; Muhammad Bhuiyan; Beatrycze Nowicka; Abu Bakar Siddique (Agriculture and Food Systems); "Genetic Engineering for Heavy Metal/Metalloid Stress Tolerance in Plants", John Wiley & Sons

Arifin Sandhi; Abu Bakar Siddique (Agriculture and Food Systems); Meththika Vithanage; "Mercury Toxicity Plant Response and Tolerance", John Wiley & Sons

Megan Verdon (TIA - Research Institute); Jean-Loup Rault; "14 Aggression in group-housed sows, weaners, and grower-finisher pigs", Elsevier

N Bolan; P Srivastava; C Rao; P Satyanaraya; G Anderson; S Bolan; G Nortjé; R Kronenberg; S Bardhan; L Abbott; Haochen Zhao (Agriculture and Food Systems); P Mehra; S Satyanarayana; N Khan; H Wang; J Rinklebe; K Siddique; M Kirkham; "Chapter Two - Distribution, characteristics and management of calcareous soils", Academic Press

Fahad Khan (Agriculture and Food Systems); Munazza Ijaz; Azka Akhlaq; Shahid Nawaz; Junaid Munawar; Ehsan Rashid; "16 Applications of nanomaterials to build a sustainable agriculture system", Elsevier

## Academic Conferences

Sarah Fischer (Management); Susan Kilpatrick (TIA - Research Institute); "VET career pathways for school students living with disability: working with employers", *Celebrating the Impact of Regional Research and Education*

C Ferreira; Matthew Harrison (TIA - Research Institute); N Martin; G Marcillo; P Zhao; R Tao; N Hovakimyan; Z Kalantari; "Adapting irrigated maize cropping to a changing climate"

R Toa; P Zhao; N Martin; Matthew Harrison (TIA - Research Institute); Z Kalantari; N Hovakimyan; "Optimizing crop management with reinforcement learning and imitation learning", *Proceedings of the 22nd International Conference on Autonomous Agents and Multiagent Systems*, International Foundation for Autonomous Agents and Multiagent Systems

Matthew Harrison (TIA - Research Institute); "Invited presentation on soil carbon sequestration and soil carbon markets in the rangelands", *Meat & Livestock Australia: Sustainable grazing management in focus*

R McConchie; T Bell; John Bowman (TIA - Research Institute); H Bozkurt; M Bradbury; D Carter; R Deaker; G Fletcher; E Frankish; S Gupta; Y-W Lai; A Nangul; K-Y Phan-Thien; Thomas Ross (TIA - Research Institute); J Rothwell; H Shang; D Tran; E White; F van Ogtrop; A Woolf; I Zamora; "Industry partnerships drive food safety research for fresh produce in Australia and New Zealand", *Acta Horticulturae*, International Society for Horticultural Science (ISHS)

Cameron Stone (TIA - Research Institute); D Close; Sally Bound (TIA - Research Institute); "Protected cropping of sweet cherry: microclimate and fruit quality", *Acta Horticulturae*, International Society for Horticultural Science (ISHS)

Cameron Stone (TIA - Research Institute); D Close; Sally Bound (TIA - Research Institute); Ian Hunt (Agriculture and Food Systems); "Training system effects on light interception and fruit size of 'Kordia' sweet cherry on 'Krymsk 5'", *Acta Horticulturae*, International Society for Horticultural Science (ISHS)

Chawalit Kocharunchitt (Agriculture and Food Systems); Ian Jenson (Agriculture and Food Systems); Long Huynh; Thomas Ross (TIA - Research Institute); "Cold chain management for vacuum-packed red meat using automated Shelf-Life Calculator"

Gary Martin (TIA - Research Institute); Rowan Smith (TIA - Research Institute); Hall Eric; Matthew Newell; Rebecca Haling; Richard Hayes; "Yellotas: A unique yellow serradella cultivar with potential for permanent pasture environments", Australian Grassland Association

Alan Humphries; N Nikmanesh; J Tay; Z Hossain; Rowan Smith (TIA - Research Institute); Kendrick Cox; "Advances in genebank information systems to identify diversity in pasture genetic resources"

Ramandeep Singh Sidhu (TIA - Research Institute); Sally Bound (TIA - Research Institute); Nigel Swarts; "Predictors of flesh browning flesh browning and fruit softening in apples"

Ran Tao; Pan Zhao; Jing Wu; Nicolas Martin; Matthew Harrison (TIA - Research Institute); Carla Ferreira; Zahra Kalantari; Naira Hovakimyan; "Optimizing Crop Management with Reinforcement Learning and Imitation Learning", <https://www.ijcai.org/proceedings/2023/>

Victoria Clarke (TIA - Research Institute); "Enhancing pasture legume performance in a changing climate: the case for supernodulating varieties", *Australian Grassland Research Series*, Australian Grassland Association Inc.

Victoria Clarke (TIA - Research Institute); "Early research on BioClay™ for botrytis management"

Victoria Clarke (TIA - Research Institute); Akeem Taiwo (Agriculture and Food Systems); Katherine Evans; "Development of a reproducible system for assessment of Botrytis bunch rot disease in grapevines and the impact of BioClay™ RNAi technology on disease incidence"

Victoria Clarke (TIA - Research Institute); Jelle de Boer; Akeem Taiwo (Agriculture and Food Systems); Katherine Evans; "RNAi-based mechanisms of crop protection: uptake and translocation of dsRNAs targeting Botrytis cinerea in winegrapes"

Victoria Clarke (TIA - Research Institute); Katherine Evans; "RNAi-based mechanisms of crop protection: uptake and translocation of dsRNAs in grapevine"

Ian Hunt (Agriculture and Food Systems); "Chair and invited speaker for a session on Agricultural Statistics"

Ian Hunt (Agriculture and Food Systems); "Invited speaker for a session on Statistics and the Law"

Toni Withers; Geoff Allen (TIA - Research Institute); Mike Davy; Andrew Pugh; Raylea Rowbottom; Stephen Quarrell (TIA - Research Institute); Frances James; Rebekah Smart; Dean Satchell; "Release of a Tasmanian larval parasitoid Eadya daenerys (Hym. Braconidae) against Paropsis charybdis in New Zealand"

Toni Withers; Geoff Allen (TIA - Research Institute); M Davy; Andrew Pugh; Raylea Rowbottom; Stephen Quarrell (TIA - Research Institute); Frances James; Rebekah Smart; Dean Satchell; "Release of a Tasmanian larval parasitoid Eadya daenerys (Hym. Braconidae) against Paropsis charybdis in New Zealand"

B Cullen; Matthew Harrison (TIA - Research Institute); D Mayberry; D Cobon; N Reichelt; A Sinnet; K Christie; Franco Bilotto (Agriculture and Food Systems); D-A An-Vo; C Stokes; L Perry; T Davison; "Exploring Profitable, Sustainable Livestock Businesses in an Increasingly Variable Climate", Curran Associates, Inc.

Franco Bilotto (Agriculture and Food Systems); R Vibart; A Mackay; Matthew Harrison (TIA - Research Institute); "Grass-NEXT – a Process-Based Model to Explore Nutrient and Carbon Dynamics in Topographically Complex Grazed Grasslands", Curran Associates, Inc.

A Mackay; M Dodd; K Hutchinson; R Vibart; Franco Bilotto (Agriculture and Food Systems); "Discrepancies Between Observed and Predicted Climate-Driven Net Herbage Accumulation", Curran Associates, Inc.

Abbey MacDonald (Education); Susan Kilpatrick (TIA - Research Institute); Iris Duhn (Education); Sarah Castle (Sociology and Criminology); "Beyond lettuce, lunch and learning: Fostering authentic place-based teaching and learning through a school Kitchen Garden Program"

Nicoli Barnes (TIA - Research Institute); Sarah Fischer (Management); Susan Kilpatrick (TIA - Research Institute); "Going above and beyond: Realigning university student support services to students"

Sarah Fischer (Management); Susan Kilpatrick (TIA - Research Institute); "Supporting the retention and success of online and blended learners: Review of support provided by student support services"

Lydia Hana (TSBE); Gemma Lewis (Management); Roger Stanley (TIA - Research Institute); Maria Yanotti (Economics); "Drivers and Barriers to Novel Food Processing Technology in Regional Area - A Conceptual Framework", <https://afnr.co/agrifood-conference/afnr-conference-2023/afnr-2023-list-of-abstracts/>

Lydia Hana (TSBE); Gemma Lewis; Roger Stanley (TIA - Research Institute); Maria Yanotti; "Drivers and Barriers to Adoption of Novel Food Processing Technologies in Regional Areas"

Ramandeep Sidhu, Cameron Stone, Nigel Swarts & Dugald Close; "A review of the production challenges for Sweet Cherries grown under protected cropping systems", International Society for Horticultural Science (ISHS)

Calum Wilson, Audrey Leo, Robert Tegg, Annabel Wilson, Mark Balendres and Jonathan Amponsah; "Advances in Spongospora subterranea management", *XIX Congress of the Latin American Potato Association, Puerto Varas, Chile*, Invited publication

Calum Wilson, Robert Tegg, Annabel Wilson, Eda Barsalote-Wei; "Novel techniques for soilborne disease management in the potato crop", *XIX Congress of the Latin American Potato Association, Puerto Varas, Chile*, Key note presentation

Calum Wilson; "Mechanisms & manipulation of resistance to powdery scab in potato roots", *Potato R&D Forum, Hort Connections, Adelaide*, Calum Wilson

Calum Wilson; "Invited presentation", *Potato NZ conference, Christchurch, NZ*

# Financial Report

## TASMANIAN INSTITUTE OF AGRICULTURE (TIA)

### NOTES TO ACCOMPANY FINANCIAL DETAILS

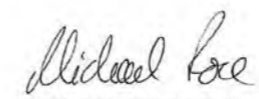
The financial details reported here relate to TIA activities for 2023. The detail was prepared by TIA and checked by Financial Services, University of Tasmania.

Specific contributions from each funding source are as follows: -

<b>1. University of Tasmania</b>	
2023 Operating Grant Funds to TIA/School of Agricultural Science	\$4,899,779
2023 University Research Scholarships to PhD students studying in areas related to TIA activities	\$1,379,541
<b>TOTAL University of Tasmania contribution</b>	<b>\$6,279,320</b>
<b>2. Department of Primary Industries, Parks, Water &amp; Environment (DPIPWE)</b>	
CRF funds granted to TIA for the 1 January 2023 to 31 December 2023 financial year under the TIA Joint Venture Agreement	\$6,079,049
<b>TOTAL DPIPWE contribution</b>	<b>\$6,079,320</b>
<b>3. Industry - including private industry and National Competitive Research grants</b>	
2023 Industry research grants held by the University for TIA activities	\$12,047,864
<b>TOTAL Industry contributions</b>	<b>\$12,047,864</b>

### CERTIFICATION OF FINANCIAL DETAIL

We certify that the financial detail contained in the 2023 Tasmanian Institute of Agriculture Research Annual Report has been prepared in accordance with detail held in the University of Tasmania's Financial Management Information System, and detail provided by TIA.

  
 ..... 21 / 03 / 2024  
 Professor Michael Rose  
 Director TIA

  
 ..... 25 / 03 / 24  
 Ben Rose  
 Chief Financial Officer,  
 Financial Services  
 University of Tasmania



UNIVERSITY of TASMANIA




Tasmanian Institute of Agriculture

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