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The UWA Institute of Agriculture

With a single, striking question — "We do research well, but is it enough?" — Winthrop Professor Fiona Wood set the tone for the 19th Annual Industry Forum.

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THE UNIVERSITY OF WESTERN AUSTRALIA

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Front cover photo: 2025 Industry Forum presenters with Chief Scientist of WA Professor Sharath Sriram, Mr Paul McKenzie, Dr Beth Woods, Ms Tress Walmsley, IAB Chair Terry Enright, Ms Carly Veitch, Winthrop Professor Fiona Wood, Hackett Professor Kadambot Siddique and Mr Terry Hill.

From the Director

What an honour it was to welcome His Excellency the Honourable Chris Dawson APM, Governor of Western Australia, to open our annual Postgraduate Showcase. His thoughtful reflections and strong endorsement of agricultural research were deeply appreciated by all in attendance.

Over the past 19 years, 143 PhD students have presented at this event, which has served as a platform to showcase the outstanding quality of their research and its ongoing contribution to the advancement of agriculture and related areas (page 15).

Soon after, the Institute hosted its flagship event for the year, the 19th 2025 Industry Forum (page 10). The event provided a platform to open critical conversations around the future of RD&E funding, enabling open and constructive dialogue between industry leaders, policymakers, and researchers. With contributions from respected figures such as Professor Fiona Wood and Dr Beth Woods, the forum encouraged valuable reflections on how we can position agriculture research for long-term innovation and resilience.

We were privileged to host a number of distinguished visitors (see page 4, 16 and 18), whose lectures and insights added valuable perspectives to agriculture science and innovation and helped deepen our national and international collaborations.

On a personal note, I was deeply humbled to receive a Doctor of Science honoris causa from my alma mater, Kerala Agricultural University, India (page 14), and the 2024 Crawford Fund Medal from The Honourable John Anderson AC, FTSE, Chair of The Crawford Fund (page 4). I am sincerely grateful for these recognitions, which reflect not only personal milestones but also the collective achievements of my research collaborators, postgraduate students and supporters.

Hackett Professor Kadambot Siddique
AM CitWA FTSE FAIA FNAAS FISPP FAAS FPAS
kadambot.siddique@uwa.edu.au

Fremantle hosts national gathering for innovation in plant breeding

Organised by the Australasian Plant Breeding Association, the 17th Australasian Plant Breeding Conference (APBC 2025) was held from 4–6 June 2025 in Fremantle, Western Australia.

UWA played a leading role in organising the event, with Professor Jacqueline Batley serving as Conference Chair and Theme Lead. With the theme *Celebrating Impact*, the conference highlighted how research in plant breeding is delivering tangible outcomes across agriculture and horticulture.

Held across a series of plenary lectures, keynotes, thematic sessions, poster presentations, and working groups, the program explored breeding advances across grains, viticulture, floriculture, pomology, and more.

UWA researchers were actively involved. Among them, Karen Nelson and Aneeta Pradhan presented a poster on the development of a mid-season flowering lupin crop, alongside collaborators Professor Wallace Cowling, Adjunct Professor Matthew Nelson, Dr Candy Taylor and several PhD students.

The event was supported by key partners, including GRDC, AGT, and COGGO, and strongly reflected the national commitment to research-led innovation in food and farming systems.

UWA researchers Dr Aneeta Pradhan and Dr Karen Nelson at APBC 2025.

Students from John Calvin Christian College during their visit to UWA Farm Ridgefield.

Year 9 Students from John Calvin Christian College explore sustainable farming and land care at UWA Farm Ridgefield, Pingelly

About 90 Year 9 students from John Calvin Christian College visited multiple sites across UWA Farm Ridgefield on 20 May 2025 for a hands-on learning experience.

Their first stop was the long-term Land Restoration Demonstration site funded by the National Landcare Program. This area has been planted with local native trees and pasture plants that co-exist to build biodiversity, habitat structure, and stabilization of the landscape. The demonstration site was established to provide an example of improving pasture productivity in early stages of its exposure to salinity and erosion, and to protect and improve the local remnant vegetation.

Elsewhere on the farm, students were shown how other high-school students have made a significant contribution to landscape restoration at Ridgefield since 2012, by planting local vegetation to avoid erosion and provide shelter for sheep, especially during the lambing season. This earlier restoration work was coordinated by Emerita Professor Lyn Abbott and Mr Bruce Ivers over many years, and he continues to be involved with land care programs in WA.

The long-term Soil Carbon Trial on the farm was included as an example of other land restoration work on the Ridgefield. This trial was established in 2022 and is funded by the Carbon Farming and Land Restoration Program of the WA Department of Primary Industries and Regional Development. It is assessing whether inclusion of perennial pasture species with annual pasture species can improve soil carbon in paddocks which are reserved for permanent grazing on Ridgefield.

In addition, students explored how native perennial plants can be integrated into grazing systems and learned about the types of sheep raised on the farm. They also learned about the importance of mapping the farm to increase the efficiency of production and profitability. The visit included an investigation of rainfall predictions in the southwest and how water is used at Ridgefield, including the reason why a roaded catchment was established to direct water into the main dam on the farm.

The tour included the shearing shed and other key infrastructure, such as the communications tower. The students came well-prepared, thanks to their teacher Nathan Houweling, HASS Learning Area Coordinator at John Calvin Christian College, and engaged very actively with learning more about salinity, soil erosion and soil health back in the classroom.

At the end of their visit, each student completed an annotated field sketch at Ridgefield Farm that included classification of physical and cultural features.

Emerita Professor Lynette Abbott
lynette.abbott@uwa.edu.au

Accolades grow for world-leading agricultural scientist

Hackett Professor Kadambot Siddique, Director of The UWA Institute of Agriculture, has received the prestigious 2024 Crawford Fund Medal in recognition of his outstanding contributions to international agricultural research and development.

Awarded annually, the Crawford Fund Medal honours individuals who have made a sustained and significant impact on agricultural development through science, education, and capacity building.

On 12 August, Professor Siddique was presented with the medal at the Fund's 2025 Annual Conference, held at Parliament House in Canberra . "I'm honoured to have my service to science education, outreach and advocacy recognised with this prestigious award," Professor Siddique said.

Crawford Fund CEO Shaun Coffey praised Professor Siddique's dedication to agricultural development, spanning more than 35 years. "He has led and co-led numerous international projects funded by ACIAR and the UN FAO and played a vital role in building research partnerships and training scientists across continents," Mr Coffey said.

Professor Siddique has pioneered research on grain legumes, breeding and releasing 13 commercial cultivars including chickpea, lentil and grasspea. His work has significantly advanced crop productivity and food security in both developed and developing countries.

The Honourable John Anderson AC, FTSE, Chair of The Crawford Fund with Hackett Professor Kadambot Siddique and his wife Almaz Siddique.

This latest recognition further cements Professor Siddique's legacy as a visionary leader in sustainable agriculture and global food security.

Exploring climate-resilient agriculture in the Omics Era

Associate Professor Narayanan during her lecture.

As part of her two-week sabbatical to UWA, Associate Professor Dr Sruthi Narayanan from Clemson University, USA delivered a public lecture on 18 June, hosted by the IOA in the Alan Robson Agriculture Lecture Theatre.

Attended by over 30 participants, her lecture, *"Sustainable Agriculture in the Omics Era: Multiscale Physiology to Breed Climate-Resilient Crops,"* provided a comprehensive overview of her team's eco-physiological research on crop resilience under abiotic stress. By integrating molecular physiology with production agronomy, her work seeks to develop agricultural systems that are both climate-resilient and economically viable.

Structured around two key themes, crop adaptation to climate change and sustainable cropping systems, the lecture first examined the identification of stress-tolerant traits, mechanisms, and genotypes. These findings support breeding programs targeting crops adapted to future environmental conditions.

The second half focused on improving agronomic practices to enhance water use efficiency, soil health, and stress tolerance. Together, these strategies aim to advance the productivity and environmental sustainability of agricultural systems.

During her visit, Associate Professor Narayanan toured the Canola projects at the Shenton Park Field Station alongside Professor Wallace Cowling and Dr Shen Chen. She engaged with several researchers including IOA Director and strengthened collaborative opportunities in plant physiology, breeding, and sustainable agriculture.

Watch the lecture recording on the Institute's YouTube channel.

Felipe Castro Urrea visiting trial in Williams WA with NPZA team Rozlyn Ezzy and Jasenka Vuksic.

"I am excited for the new challenges that this new stage brings. My time at the university laid the foundations for navigating the complexities of this new role and I am looking forward to continuing developing my professional skills."

UWA–NPZA partnership grows stronger with new plant breeder appointment

The UWA Institute of Agriculture is proud to celebrate a new milestone in its long-standing partnership with NPZ Australia Pty Ltd (NPZA), with Dr Felipe Castro Urrea stepping into the role of canola breeder at the company.

Felipe, originally from Chile, began his journey in plant science with an agronomy degree in his home country before moving to Perth to pursue a Master's in Agricultural Science at UWA. His PhD thesis in quantitative genetics at UWA was passed by the examiners under the supervision of Professor Wallace Cowling, Hackett Professor Kadambot Siddique, and Dr Li Li (University of New England, Armidale). His research, partly conducted in collaboration with NPZ, focused on accelerating genetic improvement in field peas and laid the groundwork for his transition into industry.

"This opportunity represents a significant moment in my career, offering a unique opportunity to contribute with my research into a practical outcome. This has only been possible thanks to years of study and the continued support of NPZ through a project developed in collaboration with the university. I am grateful for being involved in the IOA research community, which allowed me to hone my research skills while enjoying this journey."

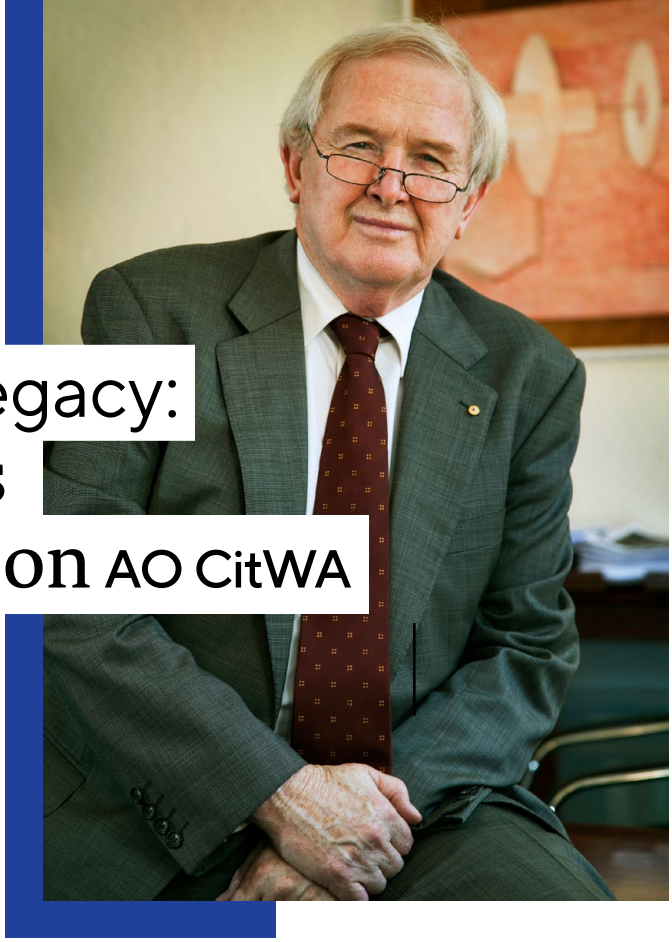
Appointed in April 2025, Felipe now works closely with NPZA's on-site team and international headquarters, preparing to eventually take on the leadership of the Australian breeding program. His appointment marks a significant continuity in UWA's impact on global agriculture and highlights IOA's role in connecting rigorous academic research with industry outcomes.

Felipe succeeds Professor Wallace Cowling, a pioneering figure in canola breeding and a key driver of the UWA–NPZA collaboration for over 25 years. Wallace will continue in a at UWA, supporting ongoing research and mentoring the next generation of plant breeders.

IOA Director Professor Kadambot Siddique noted the transition as "a proud moment that reflects IOA mission, delivering innovative research and developing agricultural leaders for the future."

As Felipe takes on this new role, IOA looks forward to strengthening its collaboration with NPZA and continuing to support breakthroughs in sustainable agriculture and crop resilience.

Felipe Castro Urrea
felipe.castrourrea@research.uwa.edu.au



Emeritus Professor Alan Robson during his six years as Vice-Chancellor of UWA.

Celebrate a lifelong legacy: honouring Emeritus Professor Alan Robson AO CitWA

Emeritus Professor Alan Robson devoted over 45 years to UWA, leaving a profound impact on students, academia, and the wider community.

Born in regional Victoria, Alan's early experiences shaped his deep commitment to supporting students from rural and remote areas, ensuring they had the opportunity to succeed at UWA.

He began his journey at UWA in 1966 as a PhD student in soil science, rapidly becoming a leading figure in agricultural research and education. Alan served as Dean and Hackett Chair of the Faculty of Agriculture before taking on senior leadership roles, including Deputy Vice-Chancellor and later Vice-Chancellor from 2004 to 2011.

Under his leadership, UWA rose to be ranked among the world's top 100 universities, celebrating over 65,000 graduates, a legacy of Alan's dedication to creating an inclusive, student-focused institution.

Scan to donate

To honour his remarkable contributions, the Alan Robson Memorial Fund has been established with a goal to raise $300,000 to support two initiatives close to Alan's heart.

The first is the Alan Robson Remote Scholarship, which provides life-changing opportunities for students from rural and remote communities in WA to study at UWA. The second is the Alan Robson Lecture Series in Agriculture, an annual event designed to bring world-leading agricultural scientists to inspire students, academics, and industry leaders alike.

You can honour Alan Robson's extraordinary legacy by making a gift to the Memorial Fund. To donate, visit giving.uwa.edu.au/alan-robson-memorial-fund or scan the QR code.

Hackett Professor Kadambot Siddique
kadambot.siddique@uwa.edu.au

UWA embraces ag engineering innovation in Italy

The CEI:AgER leadership team with CNH's Director of Powertrain Innovation Dr Stefano Fiorati at CNH's R&D facility in Modena.

Italy is known for its art and wine, but equally for its legacy of engineering and design. That legacy drew Associate Professor Andrew Guzzomi and colleagues from UWA's Centre and IOA for Engineering Innovation: Agriculture and Ecological Restoration (CEI:AgER) to Italy last November for the world-renowned EIMA exhibition in Bologna.

The biennial event draws over 300,000 visitors and showcases cutting edge agricultural machinery. For CEI:AgER, it is more than a trade show, it is a launchpad for innovation.

Joined by tech leads Dr Wesley Moss and Dr Monte Masarei, and former honours student Caleb McKenna, the team explored tools and technologies for current and future projects, from precision weed control to ecological restoration at scale.

Their visit also included high level discussions with global manufacturer CNH and a showcase of CEI:AgER's work at the University of Bologna. With new collaborations forming and a start-up set to launch, CEI:AgER is placing Australian engineering on the world map.

Left to Right: Ms Dagmawit Tsegaye (EIAR), Mr. Roy Odama (Alliance-Uganda), Dr. Clare Mukankusi (Alliance-Uganda), Dr. Immaculate Mugisa (NaCRRI), Ms. Winnyfred Amongi (Alliance-Uganda), Dr. Renu Saradadevi (UWA).

Transforming bean breeding for health and efficiency in East Africa

Beans are a vital dietary staple across Africa, providing essential nutrition to millions. Now in its fifth year, the *Rapid Cooking Bean Project* (RCBP), funded by the Australian Centre for International Agricultural Research (ACIAR) with lead Australian institution UWA, is making great strides in developing improved common bean varieties that are faster to cook and more nutritious.

In March 2025, IOA Research Associate Dr Renu Saradadevi led a hands-on workshop at the Alliance-CIAT bean breeding station in Kampala, Uganda, which was a pivotal moment in RCBP's development. The workshop focused on training a new generation of bean breeders to sort and categorize seeds based on market-preferred colours and to implement optimized crossing designs with optimal contributions selection (OCS). OCS will speed up the breeding of beans that cook more quickly and are enriched with vital micronutrients like iron and zinc.

Collaborating with UWA-IOA, Alliance-CIAT, the Pan-Africa Bean Research Alliance (PABRA), and six National Agricultural Research and Extension Organisations (NARES) from East Africa, the RCBP is working to produce beans that cook at least 30% faster and contain 15% more iron and 10% more zinc compared to traditional varieties. Through cutting-edge breeding methods like genomic selection, the project is improving both the nutritional content and cooking efficiency of beans, crucial for addressing food security in the region.

Over the past five years, RCBP has made significant progress, with early results showing a 14% reduction in cooking time annually and a 3% increase in grain yield. These innovations promise to reduce fuel use and cooking time, while addressing micronutrient deficiencies, particularly among women who traditionally manage cooking in East African households.

Looking ahead, RCBP continues to empower local breeders with gender-inclusive training, fostering long-term agricultural and community development. With each milestone, the project brings East Africa closer to a future where beans are not only faster to cook but also healthier and more sustainable, benefiting farmers and communities alike.

Professor Wallace Cowling
wallace.cowling@uwa.edu.au

Research Associate Dr Renu Saradadevi
renu.saradadevi@uwa.edu.au

Advancing soil science research through the Soil Science Challenge Program

Soil may seem simple, just dirt beneath our feet, but it's one of the most complex and vital systems on Earth. It's a living, three-dimensional structure that sustains our crops, stores water, regulates carbon, and supports a vast underground world including bacteria, fungi, soil fauna, and roots. Understanding this dynamic system is at the heart of Soil Science Challenge Program, a nationally funded initiative aligned with Australia's National Soil Strategy and National Soil Action Plan.

UWA, in collaboration with researchers from Western Sydney University and The University of Adelaide, is playing a pivotal role in addressing key knowledge gaps in soil function.

UWA's primary research focus lies in the biological mechanisms that underpin the effects of biological amendments—such as compost, digestate, and biochar—on soil health, productivity, and resilience.

While these amendments are widely used in sustainable agriculture, many of their purported benefits have yet to be substantiated by robust scientific evidence. To address this, UWA has assembled a multidisciplinary research team led by Dr Sasha Jenkins, Emeritus Professor Lynette Abbott, Dr Bede Mickan, and Professor Nanthi Bolan, supported by postdoctoral researchers, PhD students, and technical staff. Spanning four interconnected projects, the team is investigating how organic amendments influence soil microbial communities, their interactions with chemical fertilisers, and how these interactions translate into improved soil structure, nutrient cycling, and carbon dynamics.

One project employs DNA stable isotope probing to trace the fate of ^13C-labelled compounds from composts through microbial networks, revealing pathways of carbon stabilisation in soils. Another study is assessing the long-term effects of compost application under heat stress conditions on the productivity of C3 and C4 pasture species, alongside shifts in soil microbial diversity, using advanced glasshouse technologies. In a complementary effort, a comprehensive meta-analysis of 261 published studies has been conducted to synthesise the role of soil organic carbon (SOC) and explore how soil minerals and additives contribute to SOC stabilisation in amended systems.

The UWA team is also quantifying the biological and structural mechanisms that underpin soil function and applying them to models that can guide farm decisions. The goal is to enable more efficient use of organic and chemical fertilisers, to improve drought resilience, and to build soils that not only grow food but store carbon and support biodiversity.

Through active engagement with industry partners, government agencies, farmers, and extension networks, the UWA research team is ensuring that findings are translated into practical, scalable solutions. Ultimately, this work is not only redefining how we understand soil but also how we value and manage the living systems that sustain agricultural production and ecosystem health.

Emerita Professor Lynnete Abbot during the Soil Science Challenge workshop in Pingelly.

Hackett Professor Kadambot Siddique with NWAFU students and staff.

Building on a longstanding partnership with Northwest Agriculture and Forestry University in China

In April, the IOA's Director Hackett Professor Kadambot Siddique embarked on a productive two weeks visit to Northwest Agriculture and Forestry University (NWAFU) in Yangling, China. This visit further solidified the enduring partnership between UWA IOA and NWAFU, a collaboration that has been formalized through a Memorandum of Understanding (MoU) since 2005.

During the trip, the Director had the opportunity to meet with key figures at NWAFU, including Professor Wu Put, President of NWAFU, the Vice President, Director of International Partnerships, Deans, and senior Professors. Professor Siddique engaged in a series of meetings with collaborators, postgraduate students, and faculty members, attending presentations and visiting experimental sites where cutting-edge research in agriculture is being conducted.

Additionally, he delivered several lectures, providing updates on the progress of collaborative projects and discussing the future direction of the partnership. The discussions focused on reviewing the success of ongoing initiatives and identifying new areas of collaboration in sustainable agriculture, climate adaptation, and food systems. A special thanks was extended to Professor Ly Li and her team for their exceptional organization and warm hospitality throughout the visit.

This visit not only reaffirmed the importance of international partnerships in agricultural research but also highlighted the critical role that UWA IOA and NWAFU play in shaping the future of sustainable agriculture on a global scale.

Hackett Professor Kadambot Siddique
kadambot.siddique@uwa.edu.au

French ag student joins IOA research team for hands-on internship

Clément Chatard, a 21-year-old student from VetAgro Sup University in France, is completing a three-month internship at the UWA Institute of Agriculture.

Now in his fourth year of Agronomic Engineering, he is working under the supervision of Hackett Professor Kadambot Siddique.

During his time at UWA, Clément has been assisting with several glasshouse-based experiments on wheat and canola, supporting research into drought tolerance, phosphorus response, and nitrogen use efficiency. His role includes measuring physiological traits, watering, weighing plants, and helping during harvests, providing practical experience in managing controlled-environment trials.

Clément also had the opportunity to visit one of UWA's major research sites, spending a week at UWA Farm Ridgefield. There, he assisted with lambing in the MERIL-3 project, helping to weigh and tag new lambs, observe sheep behavior, and provide feed. He gained first-hand experience in livestock research and sustainable farming practices in regional Western Australia.

"This internship has been an incredible experience," says Clément.

"Before coming, I wanted to explore the world of agricultural research, and IOA has fully met my expectations. It has allowed me to gain valuable insights into scientific research and to develop practical skills in managing glasshouse experiments."

Clément Chatard in the glass house.

“We do research well, but is it enough?” – a bold call rings out at the 2025 Industry Forum

With a single, striking question, Winthrop Professor Fiona Wood set the tone for the 19th Annual Industry Forum, hosted by the UWA Institute of Agriculture at The University Club of Western Australia on 6 August.

The proceedings were formally introduced by Hackett Professor Kadambot Siddique, Director of the UWA Institute of Agriculture, who highlighted the Forum’s enduring role over the past nineteen years as a platform for rigorous debate on the most pressing issues in agriculture. Previous forums have addressed topics such as the feasibility of achieving Net Zero emissions in the sector.

In 2025, attention turned to a particularly urgent and contested matter: the future funding landscape for Australia’s agricultural research, development, and extension (R, D & E) over the coming two decades.

Serving as MC, Carly Veitch, Farm Management Consultant and IOA Industry Advisory Board member, welcomed attendees and set the stage for what became a forward-looking discussion introducing Winthrop Professor Fiona Wood AO, FRCS, FRACS.

“Do we have an appetite to do better?” asked Professor Wood, challenging the room to reflect beyond success metrics. As member of the Strategic Examination of Research and Development panel, her address traced the evolution of federal funding in agricultural innovation and urged attendees to embrace risk, integrity, and urgency.

“The bigger risk is that we don’t take a risk at all”.

The momentum for transformation continued with keynote speaker Dr Beth Woods OAM, who shared insights drawn from across Australia’s Rural Research and Development Corporations. *“If our focus question was how we improve diets for local Australians, we’d design our system differently,”* she remarked, urging a shift away from narrow productivity goals. Woods advocated for a whole-of-system approach, one that prioritises local food systems, reduces waste, and opens the door to new partnerships across retail, philanthropy, and beyond. *“We need to start investing now… rather than playing catch-up later,”*

Industry perspectives were sharply delivered by Tress Walmsley, CEO of InterGrain. Drawing on real-world examples, she emphasised the need for a connected, collaborative innovation ecosystem. *“Stop accepting the status quo… lean in and participate in the conversation on how we can remodel the RD&E ecosystem.”*

Representing the farming community, Paul McKenzie, farmer, company director and agriculture consultant, highlighted the need for more transparent governance and stronger farmer representation in levies investment. His message was clear: empower farmers to lead, not just contribute.

The Forum concluded with a dynamic panel discussion, facilitated by Terry Hill. The session brought together diverse perspectives from presenters and participants, sparking lively Q&A exchanges and thoughtful debate.

Supported by CSBP and the Farmers Ltd Jubilee of Agriculture Science Fellowship, the 2025 Industry Forum reaffirmed the ongoing commitment of IOA with the agricultural community to innovation, dialogue, and sustainable investment in Australia’s agricultural future.

Watch the event recording on the Institute’s YouTube channel.

Paul McKenzie delivering his presentation.

New plant phenotyping facility to help WA farming grow

A new node at The University of Western Australia will help transform plant phenotyping and drive the growth of crops resilient to climate change while enabling more sustainable agricultural practices.

On July 2, the Australian Plant Phenomics Network launched two new Western Australian nodes at UWA and DPIRD.

Associate Professor Nic Taylor, Director of the Australian Plant Phenomics Network node at UWA, said breeders and scientists would benefit from the experimental design, data acquisition and data analysis undertaken at the facility.

"Together with our research partners, we will help develop higher-yielding and more nutritious crop varieties that have a greater resilience to climate change," Associate Professor Taylor said. "It will enable the identification and isolation of desirable traits in new cultivars, often years faster than conventional breeding trials."

Funding from the partners will provide more than $15 million over five years, to drive innovation through plant phenotyping. A state-of-the-art digital phenotyping for controlled environments, including a dedicated extreme climate facility, and drone phenotyping will be funded at UWA.

UWA Centre for Water and Spatial Science co-director Associate Professor Nik Callow will lead the drone phenotyping field component that includes multispectral, hyperspectral and LiDAR drones and will also include ground-based robots and sensors.

"Drone pilots and data science staff will be able to go from paddock drone data collection to obtaining advanced data on plant traits across thousands of plots, transforming how we do agricultural research in WA," Associate Professor Callow said.

The new nodes reflect a collaborative partnership between the Australian Government's National Collaborative Research Infrastructure Strategy, the Western Australian Government through DPIRD and Jobs, Tourism, Science and Innovation, UWA and the Grains Research and Development Corporation.

Associate Professor Nic Taylor
nicolas.taylor@uwa.edu.au

Peter Bird, GRDC, Dr Hammad Khan, DPIRD, Minister Jackie Jarvis, Dr Nic Taylor, UWA, Dr Parwinder Kaur, MLC, Richard Dickmann, APPN.

Associate Professor Andrew Guzzomi, Alisya Kepert and Dr Wesley Moss.

UWA champions new agriculture curriculum in WA secondary schools

The University of Western Australia is driving the adoption of the new senior secondary agriculture curriculum through *Grain Automate*, a project led by CEI:AgER and funded by GRDC.

Alysia Kepert, a UWA Wool Science graduate with over 20 years of education experience, has been appointed to engage schools in adopting the new 'Agribusiness' and 'Agricultural Science and Technology' courses. She is working alongside Associate Professor Andrew Guzzomi and Dr Wesley Moss to help reshape agricultural education in Western Australia.

Technology plays a vital role in addressing global food production challenges, but a skilled workforce is essential to deliver solutions. Dr Moss highlights that agriculture is currently facing a major workforce shortfall, with Australia alone needing about 4,000 professionals per annum to meet current and future demand.

Raising the profile of agriculture in both primary and secondary schools is key to showing its relevance to daily life and the wide range of career opportunities it offers. Associate Professor Guzzomi noted the strong alignment between agriculture and national STEM priorities, with the added appeal of contributing to global food sustainability.

Interest from schools has already exceeded expectations, particularly among those seeking new curriculum options that align with growing industry needs.

Alisya Kepert
alysia.kepert@uwa.edu.au

Professor Siddique in the field, Geriana Kauh Village, Karangasem, Bali.

UWA IOA – Universitas Udayana partnership advances sustainable rice farming in Bali

During the first week of June, Hackett Professor Kadambot Siddique, Director of The UWA Institute of Agriculture, visited Bali to progress two joint research projects with Universitas Udayana.

The first project aims to advance sustainable farming and improve climate resilience in Bali's traditional rice systems. The project focuses on the conservation and genetic study of local rice varieties that have been maintained due to cultural traditions, despite the dominance of high-yielding varieties introduced in the 1960s. The research will investigate biological and genetic diversity, document cultural practices supporting rice diversity, assess nutritional values, and explore commercial potential.

During his visit, Professor Siddique met with Professor Ketut Sudarsana, Rector of Universitas Udayana, and collaborators, including Professor Gust Bagus Wiksuana (Vice Rector, Finance and General Affairs), Professor Gusti Ngurah Alit Susanta Wirya (Vice Rector, Student Affairs), Professor Ayu Ida Astarini, Professor Ainul Ghurri, and Professor Dwi Fatmawati, to review project progress.

A highlight of the trip was a visit to Geriana Kauh Village in Karangasem, where Professor Siddique met local farmers and discussed about traditional land race rice production and the need for crop diversification and sustainable land management practices.

The second project aims to explore the use of Geographical Information Systems and discuss strategies to enhance carbon capture in soil and plant biomass. This project focuses on total carbon sequestration in soil and plant biomass within Subak rice fields in the Yeh Ho Watershed, supporting climate-smart, sustainable agriculture in the region.

He also met with the university's leadership to strengthen ties and explore collaboration, especially in internationalisation, where he serves as an external advisor to the Rector.

The trip concluded with Professor Siddique delivering a lecture on biochar and its potential role in sustainable agriculture to postgraduate students and staff in agricultural and environmental sciences.

UWA agriculture graduates hold their 50th anniversary reunion at the IOA

Eleven UWA Faculty of Agriculture graduates from the class of 1975 celebrated their 50th anniversary reunion with The UWA Institute of Agriculture in April. Hackett Professor Kadambot Siddique hosted a morning tea meeting at the UWA Paterson Board Room accompanied by Emeritus Professor David Lindsay.

Participants flew in from Ethiopia, Bhutan and Adelaide and drove from various parts of WA to join the reunion. With a collective 550 years of graduate experience to share, discussions continued throughout the afternoon into the evening. Careers ranged from animal and crop production, research, academia, international development and education. Without exception, a shared love of agriculture has bound the group for over half a century. Class members reminisced on the importance of a UWA agriculture education to their own careers and for the continued support of food production.

In attendance were (from left to right) Harry Nesbitt, Reg Lance, Rod Lefroy, David Lindsay, Ross Brennan, Greg Paust, Ian McPharlin, Tony Dean, Richard Bell, Kadambot Siddique. Kneeling in front, Michael Pocock, Ed Barratt Lennard, Tenzin Dorji.

Breeding better beans for a more food-secure future

Uwera's PhD research experiment on the effect of drought on cooking time and nutrients content at Rubungo site, Gasabo District.

Against a backdrop of shifting climate conditions, nutritional challenges, and energy scarcity in sub-Saharan Africa, PhD student Annuarite Uwera is working to improve a crop that plays a vital role in regional diets: the common bean. Ann's PhD is supervised by Professor Wallace Cowling, Hackett Professor Kadambot Siddique and Dr Renu Saradadevi.

Based at The UWA Institute of Agriculture and supported by a John Allwright Fellowship from the Australian Centre for International Agricultural Research (ACIAR), Uwera is researching how different common bean types of copes with drought by focusing on cooking time and levels of iron and zinc.

"My research aims to fill a gap in bean breeding program by addressing the need to develop biofortified bean varieties that are fast cooking and resistant to drought," explained Uwera.

Her research is part of a broader international initiative led by ACIAR in collaboration with CIAT-Bioversity and national partners across six African countries. In Rwanda, field trials are underway in three districts that reflect a range of agroecological conditions, including variations in soil and rainfall.

Cooking time is a critical factor in resource-limited settings. "Cooking time in common beans is an important trait as in developing countries like Rwanda, cooking foods accounts for approximately 90% of total household energy consumption with wood being the primary fuel source," she said.

> "Nowadays, there is an increasing demand for foods that are faster and easier to cook."

Uwera also emphasises the nutritional dimension. "Malnutrition and stunting remain a serious problem in developing countries. There is a need to develop nutrient dense crops like biofortified beans," she explained. Beans, she notes, are a staple in Rwanda and often referred to as the "meat for the poor" due to their protein and micronutrient content.

The potential impact of her work is far-reaching. "Identify drought tolerant biofortified bean genotypes will reduce the risk of low productivity for farmers growing beans under water limited conditions", said Uwera. She highlights that if drought does not affect negatively the nutrient content, farmers and consumers will benefit from biofortified beans that will help them fight malnutrition and hunger.

She credits her progress to teamwork. "Collaboration has played a vital role in the progress and success of my research so far. Working with technicians and scientists from various fields and institutions has helped me gain a deeper understanding of my research."

Looking ahead, Uwera believes the next generation of African researchers is essential to agricultural transformation. "Young African scientists like me play a significant role in reshaping the continent's food systems by driving research and innovation and by applying knowledge and technologies to address challenges that are currently affecting the agriculture sector," she said.

"Our work ensures that research outcomes are translated into practical solutions that strengthen and develop the food systems across the continent and beyond.

Annuarite Uwera
24388491@student.uwa.edu.au

Cropping Enabled Cattle project. Credit: WAARC

New feedlot research to grow cropping and cattle in WA's north

A research project is underway in the Kimberley designed to grow future beef production options in Western Australia's north, while creating a circular economy through the use of irrigated crop by-products in cattle feed.

The WA Agricultural Research Collaboration's (WAARC) inaugural *Cropping Enabled Cattle* project will examine how high-protein cotton seed and meal, maize, and other irrigated crop supplements impact cattle growth, health and welfare, performance, time to market, and meat quality.

The project aims to develop an integrated cropping and cattle production system, enabling pastoralists to produce an animal that is more widely marketable.

This $6 million, three-year initiative is a co-investment between WAARC and several partners including the Cooperative Research Centre for Developing Northern Australia and the Cotton Research and Development Corporation.

The project benefits from the scientific expertise and collaboration of several WAARC members, including UWA, DPIRD, CSIRO, and Murdoch University, alongside local producers and industry.

DPIRD is leading the project at the department's Frank Wise Institute of Tropical Agriculture in Kununurra, where more than 50 Brahman cattle have arrived to be part of the feedlot research trials.

Cotton seed, a high-quality source of protein and energy, may contribute to improved growth rates and feed efficiency in beef steers, reducing time to market.

Sensor technologies, including rumen, subcutaneous and external monitors, will track cattle physiology and behaviour.

Staff are also being trained in stress-free stockmanship techniques.

The project brings together the scientific expertise of WAARC partners, including UWA, where project leaders Associate Professor Dominique Blache, Professor Phil Vercoe, Dr Luoyang Ding and Professor Shane Maloney are guiding research on animal physiology and welfare. Other collaborators include DPIRD, CSIRO, and Murdoch University, working alongside local producers and industry stakeholders.

WAARC is backed by $25 million in State Government funding to support long-term industry sustainability in Western Australia.

Lifelong dedication to agriculture recognised with Honorary Doctor of Science in India

Forty-eight years after graduating, Hackett Professor Kadambot Siddique has been awarded a Doctor of Science (Honoris Causa) by Kerala Agricultural University (KAU), his alma mater.

This award is an acknowledgment to his outstanding contribution to global agricultural science, capacity building and academic leadership.

Hackett Professor Kadambot Siddique receiving the Honorary DSc.

Over the past four decades, Professor Siddique has built strong research and training partnerships with leading institutions in India and Australia. This includes several collaborative projects, joint papers and supervision of PhD students and postdoctoral fellows from Indian institutions at UWA.

His long-standing collaboration with KAU led to the establishment of the College of Climate Change and Environmental Science in 2010. Fifteen years on, the partnership continues to evolve, recently marked by the signing of a joint 1+1 Master program in Agricultural Economics and Environmental Science between UWA and KAU.

In his acceptance speech, he expressed deep gratitude to the university.

He has also contributed to India's scientific community by serving on advisory boards, steering committees, and Australian Prime Ministerial science delegations.

The conferral took place at KAU's Annual Convocation on 26 June 2025 in the presence of the Chancellor and the Governor of Kerala and Minister for Agriculture Government of Kerala.

IOA 19th Postgraduate Showcase celebrates the interdisciplinary nature of agricultural sciences

The UWA Institute of Agriculture's 19th Annual Postgraduate Showcase drew a full house to the Bayliss Lecture Theatre on 28 May, where students, industry professionals, and government representatives came together to celebrate the future of agricultural research.

The event was officially opened by His Excellency the Honourable Chris Dawson AC APM, Governor of Western Australia, whose thoughtful remarks highlighted his strong connection to and understanding of the state's agricultural landscape. UWA Vice-Chancellor Professor Amit Chakma also attended, reaffirming the UWA's ongoing commitment to agricultural excellence.

Six exceptional PhD students presented insights from their research, covering diverse topics from engineering to agribusiness including sustainable seed harvesting, climate resilience, and supply chain economics.

Chaired by Professor Tim Sercombe, Dean and Head of UWA's School of Engineering, the first session opened with Ruby Wiese, who presented her work on '*Evaluating sustainable subterranean clover seed harvesting methods'*, offering promising insights for pasture systems. George Mercer followed with his research on '*Transforming biosolids into stable soil carbon'*, demonstrating the environmental potential of organic waste reuse. Agyeya Pratap concluded the first session with a presentation on heat stress tolerance in wheat, exploring physiological and proteomic changes that could boost crop resilience to heat stress.

The second session, chaired by Professor Anu Rammohan, Director of International Relations at the UWA Business School, focused on economics and global systems. Garima explored grain logistics and supply chain resilience in Western Australia, while Emanuel Gomez presented on *'Investigating the economics underpinning traceability investment decisions of Australian grain sustainability credentials'*, helping bridge research with industry realities.

The final presentation was delivered online by Jelena Um, a joint PhD student between Nagoya University and UWA, who captivated the audience with her research on *' Effects of phytosterol profiles in genetically modified (GM) plants on post-embryonic development of phytophagous insects'*.

"This showcase is about recognising emerging researchers who are already making real contributions to agricultural science," said IOA Director Hackett Professor Kadambot Siddique. "It's inspiring to see such passion, clarity, and purpose in their work."

"The strong turnout and level of engagement reflect just how relevant and impactful our research community continues to be," he added.

A special thanks Emeritus Professor Graeme Martin, whose expert coaching helped our presenters refine and elevate their work, contributing significantly to the professional standard and success of the event.

Watch the event recording on the Institute's YouTube Channel.

Postgraduate Showcase PhD student presenters with His Excellency the Honourable Chris Dawson AC APM, Governor of Western Australia, UWA Vice Chancellor Professor Amit Chakma and Hackett Professor Kadambot Siddique, Professor Tim Sercombe, Professor Anu Rammohan and Diana Boykett.

Emanuel Gomez at IFAMA World Agribusiness Conference.

UWA shares findings on sustainability reporting in agrifood supply chains at international agribusiness forum

Emanuel Gomez, a final-year PhD student at the UWA School of Agriculture and Environment, participated in the 35th Annual Conference of the International Food and Agribusiness Management Association (IFAMA), held in Ribeirão Preto, Brazil, from 22–26 June 2025.

Emanuel presented aspects of his research on traceability and sustainability reporting in the grain supply chain during the conference symposium.

While visiting South America, Emanuel also took the opportunity to engage with various stakeholders in Argentina's grain sector, including universities, input suppliers, and representatives of commodity trading companies.

This visit culminated in a full-day seminar about Environmental Traceability in the Grains Supply Chain at the University of La Plata, where he shared insights from one of his studies examining consumer preferences for sustainability credentials in food products across Australian domestic market and Indonesian market.

His research has been supported by an RTP scholarship and a GRDC Research Scholarship top-up, which have enabled a more comprehensive analysis underpinned by robust primary data collection from both growers and consumers.

Emanuel Gomez
emanuel.gomez@uwa.edu.au

Strengthening research connections between UWA and Kerala Agricultural University

In February, The UWA Institute of Agriculture warmly welcomed Professor P.O. Nameer, Dean of the College of Climate Change and Environmental Sciences at Kerala Agricultural University, for a week-long visit focused on research collaboration and knowledge exchange.

With more than 30 years' experience studying biodiversity in India's Western Ghats, Professor Nameer interacted with UWA researchers, the Head of the School of Agriculture and Environment, representatives from the Global Engagement Office, and Professor Andrew Page, Pro Vice Chancellor (Research). Together, they discussed opportunities to strengthen joint efforts in biodiversity monitoring, climate change adaptation, and sustainable agriculture.

A highlight of Professor Nameer's visit was his insightful lecture on the *Kerala Bird Atlas and the Role of Citizen Science in Biodiversity Monitoring*, held at the Alan Robson Agriculture Lecture Theatre. He showcased how over 1,000 trained volunteers contributed to India's largest bird mapping project, documenting 380 species across 3,500 square kilometres.

The lecture also reflected over 15-year partnership between Kerala Agricultural University and IOA, including the exchange PhD students, which has enriched research on biodiversity and sustainable agriculture in both countries.

Professor Nameer PO delivering his lecture.

AHRI Director Professor Ken Flower,GRDC Managing Director Nigel Hart, GRDC Board Chair Ms Sharon Starick and Vice Chancellor Amit Chakma in AHRI's event opening.

AHRI celebrates 25 years of crop weed research

The Australian Herbicide Resistance Initiative (AHRI) recently celebrated 25 years of research in crop, weed and herbicide resistance at an event held at The University of Western Australia.

The celebration took place on Wednesday 25 June at the University Club. Speeches by UWA Vice-Chancellor Professor Amit Chakma and GRDC Board Chair, Ms Sharon Starick opened the session with a great speech about the strong presence of agriculture in UWA and how invested they are. IOA was represented by Associate Director Wallace Cowling and IAB Chair Terry Enright.

AHRI Director Professor Ken Flower described the event as a tribute to the initiative's dedication, evolution and impact, and a chance to acknowledge the collaboration between researchers, agronomists, growers and industry.

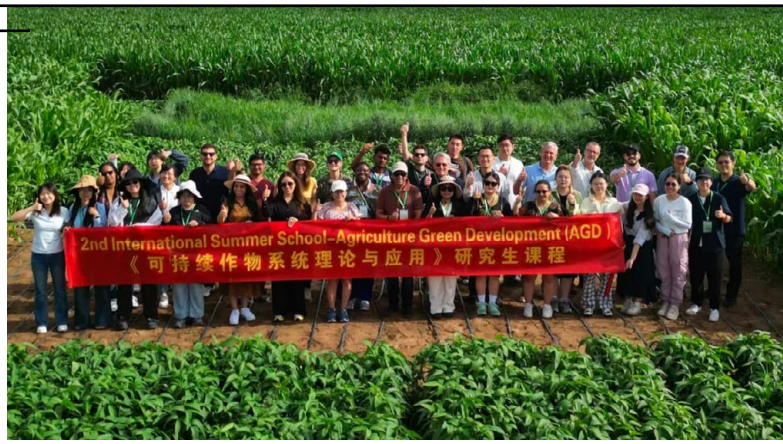
"Over a 25-year period AHRI has delivered 274 unique publications, many highly cited," Professor Flower said. "This is a significant achievement for a small research team and the 20 postgraduate students who have worked with us over this period."

The AHRI team's work has resulted in practical, long-term solutions for Australian agriculture. Their contributions included grainbelt-wide herbicide resistance surveys, the early development of harvest weed seed control, and strategies to sustain glyphosate use while discouraging poor practices such as cutting herbicide rates. These efforts have helped extend herbicide longevity and improve sustainability.

Other achievements included the development of the RIM bio-economic model for weed control, the early introduction of the herbicide Sakura (pyroxasulfone) into Australia, and the national WeedSmart campaign, an industry-wide initiative promoting sustainable cropping through targeted messaging.

Professor Flower acknowledged the vital support from GRDC and UWA, and the lasting contributions of AHRI team members over the past 25 years.

Professor Ken Flower
ken.flower@uwa.edu.au



Drone picture with participants from 2nd International Summer School on Agricultural Green Development.

UWA grows global impact at 2nd International Summer School on Agricultural Green Development in China

The two-week program brought together 25 PhD students from 10 countries for intensive training in sustainable agriculture.

Hackett Professor Kadambot Siddique and Emeritus Professor Hans Lambers from The University of Western Australia recently participated in the 2nd International Summer School on Agricultural Green Development, hosted by China Agricultural University (CAU) in collaboration with global partners including Wageningen University, INRAe, AgroParisTech, and Université Paris-Saclay.

Professor Siddique delivered keynote lectures on efficient water use in dryland agriculture and the role of farmer groups in sustainable cropping systems. Emeritus Professor Lambers spoke on sustainability challenges in modern cropping. The program also included visits to cutting-edge research sites, such as CAU's Shiyanghe Experimental Station, where long-term intercropping and fertiliser experiments are generating data with real-world application.

The group also toured Huarui Farm, where researchers and industry partners are trialling large-scale maize/soybean intercropping systems to meet growing demand for livestock feed. Field visits provided a valuable opportunity to see cutting-edge systems in action and explore opportunities for future collaboration.

The visit ended with grand opening ceremony of the 2025 Youth Co-Learning Community Conference at CAU. Senior executives from CAU and other distinguished guests delivered welcome addresses, marking the beginning of a two-day program gathering over 200 students focused on knowledge exchange, collaboration, and future-oriented thinking in agricultural development

Spotlight on science education: ConASTA 72 visits UWA and industry partners

Under the theme *"Eyes on the Future"*, The Australian Science Teachers Association's flagship national conference (ConASTA 72) was held in Perth from 7 to 10 July.

The conference brought together teachers, students, laboratory technicians, and industry professionals from across the country.

As part of the conference program, UWA welcomed a group of around 20 participants, including science teachers from Western Australia, South Australia, and Queensland, along with students from UWA, to visit key agricultural research and innovation sites.

The group toured InterGrain's facilities, gaining firsthand insight into the science behind crop breeding and cereal improvement. They also visited the UWA Shenton Park Field Station and the WA Centre for Engineering Innovation: Agricultural Prosperity and Ecological Restoration.

In addition to the site visits, Alysia Kepert, together with Associate Professor Andrew Guzzomi and Dr Wesley Moss, delivered a presentation highlighting the role of agriculture in schools through Grain Automate, an initiative led by the UWA CEI:AgER and funded by the GRDC.

Emerita Professor Lyn Abbott also delivered an engaging presentation titled *"Moving forward with soil heath, What's New?"* in collaboration with Dr Sasha Jenkins and Associate Professor Natasha Pauli. Around 20 attendees participated in the session, which sparked valuable discussion on current soil science research. Emerita Professor Abbott also shared examples of current research projects, open-access government articles and resources to support teachers in incorporating soil health topics into their teaching.

Exploring tribes, territories, and ecological wisdom from Libya to Western Australian rangelands

On 16 July, the Alan Robson Lecture Theatre reached full capacity as more than 50 attendees gathered to hear Dr Gustave Gintzburger share insights from over five decades of research in arid rangeland ecosystems.

Drawing on his recent book *The Rangelands of Libya* (CABI, 2025), co-authored with Dr Slim Saïdi, Dr Gintzburger delivered a public lecture titled *"Tribes, Territories, and the Ecology of Survival: Insights from Libyan Landscapes and Their Relevance to Australian Rangelands."*

He explored the ecological, cultural, and historical dimensions of Libya's pastoral landscapes, touching on tribal land use, traditional water systems, and the resilience of nomadic grazing practices.

Dr Gintzburger also reflected on the relevance of these systems to Western Australia's rangelands, particularly in the face of climate change and the growing need for sustainable land management strategies.

The lecture concluded with an engaging discussion, as Dr Gintzburger responded to audience questions and shared further reflections on his experiences working across North Africa and Australia.

A full recording of the lecture is available on the IOA YouTube Channel.

Dr Gintzburger during his presentation with the audience.

Awards and industry recognition

Name	Award
Boyu Zheng	Mike Carroll Travelling Fellowship
Miguel Vaz Pereira	Mike Carroll Travelling Fellowship
Hackett Professor Kadambot Siddique	2024 Highly Ranked Scholar in All Fields of Scholarly Endeavour, Scholar GPS
Hackett Professor Kadambot Siddique	2025 Research.com Plant Science and Agronomy in Australia Leader Award
Hackett Professor Kadambot Siddique	2024 Crawford Fund Medal, in recognition of considerable and continued contribution to international agricultural research through the Crawford Fund's programs and related activities.
Hackett Professor Kadambot Siddique	Doctor of Science (Honoris Causa), Kerela Agricultural University, India
Hackett Professor Kadambot Siddique	Elected and appointed as Member of the Academic Committee of the CORE Academy of Science and Humanities

Visitors to IOA

Name of visitor	Visitor's organisation and country	Host details	Dates of visit
Prof P.O Nameer	Kerala Agricultural University, India	IOA	3-10 May 2025
Mr Clement Chatard	VetAgro Sup, France	IOA	May-Aug 2025
Dr Sruthi Narayanan	Clemson University, USA	IOA	15-29 June 2025
Ms Atiqa Ishtiaq	The Government College University Faisalabad	IOA	1 July – 29 Dec 2025
Dr Gustave Gintzburger		IOA	16 July 2025
Dr Baethadj Hamdi-Aissa	University of Auargla, Algeria	IOA	25 July 2025

New postgraduate research students (PhD)

Student	Topic	School	Supervisor(s)	Funding body
Meena Kharel		UWA School of Agriculture & Environment	Amin Mugera	

Memorandum of Understanding

Name	Date
North South University	March 2025
ICRISAT	April 2025

New Appointments

Name	Start Date
Dr Jens Berger, Adjunct Associate Professor	April 2025

Research grants

Title	Funding period	Funding body	Investigators
Total Carbon Sequestration of Soil and Plant Biomass on Subak Ricefields in Yeh Ho Watershed, Bali, Indonesia	2025-2029	Udayana University	Prof Kadambot Siddique, Udayana University
Toward conservation: biological aspect, genetic diversity and ethnobotanical value of local rice in Geriana Kauh Village, Karangasem, Bali	2025	Udayana University	Prof Kadambot Siddique, Udayana University
Further Evaluation of Gyplime Effects on Wheat and Canola Growth, Grain Yield, Nutritional Status, and Soil Health in Combination with Organic Amendments Across Diverse Soil Types	2025-2026	Tianqi Lithium Kwinana Pty Ltd	Dr Zakaria Solaiman, Prof Kadambot Siddique
Service Agreement-UWA WAAA-DAW2305-003RTX - Effective virus management in grain crops (C1)	2025-2025	GRDC	Prof Martin Barbetti, Dr Mingpei You, Adj Prof Roger Jones
Improving canola nitrogen use efficiency	2025-2028	GRDC	Prof Sergey Shabala, Prof Nanthi Bolan, Prof Kadambot Siddique, Prof Wallace Cowling, Dr Sheng Chen, Prof Harvey Millar, Prof Zed Rengel and Prof Jacqueline Batley
Unleashing the potential of Restorer-of-fertility proteins for hybrid crops	2025-2028	ARC	Dr Joanna Melonek, Prof Ian Small
Effective virus management in grain crops	2025	GRDC/DPIRD	Dr Ben Condgon DPIRD; Prof Martin Barbetti, Dr Mingpei You and Adj Prof Roger Jones
Towards precision farm-management using drone-based near-infrared spectroscopy	2025-2026	Department of Education (Australia)	Assoc Prof Dilusha Silva, Prof Lorenzo Faraone, Assoc Prof Gilberto A. Membreno Umana, Prof Charles Musca
ZNE-Ag CRC Project 4020 Agrivoltaics	2025-2029	ZNE-AG CRC LIMITED	Dr Caitlin Moore, Prof Marit Kragt, Dr Pieter Poot, Assoc Prof Sally Thompson, Prof Erik Veneklaas, Dr Joanne Wisdom, Dr Kevin Foster
Intensification of northern cattle production in WA enabled by feed products from irrigated cropping	2025-2026	CRC for Developing Northern Australia	Assoc Prof Dominique Blache, Prof Shane Maloney, Prof Phil Vercoe, Dr Luoyang Ding

UWA IOA 2025 August Publications

Peer Reviewed Journals

Previously unreported

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Editor: Ana Mendigutxia Balil
ana.mendigutxiabalil@uwa.edu.au
The UWA Institute of Agriculture
Phone: +61 8 6488 4717
The University of Western Australia M082
35 Stirling Hwy, Crawley
WA 6009 Australia

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