



The Crawford Fund for Food Security



Henzell Awards 2025

Reports from Vietnam, Ethiopia and Samoa



2025 Henzell Award Recipients

Reports

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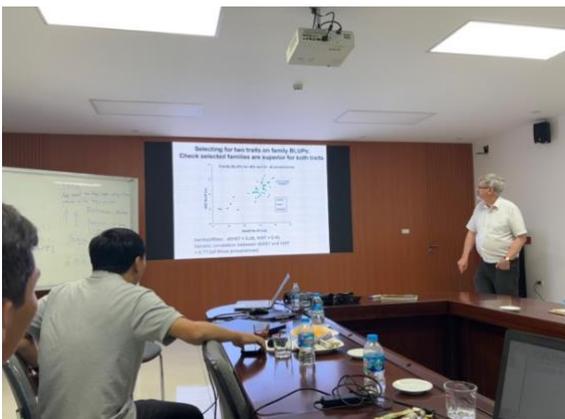
Ava Christie, University of Tasmania

TAS-1227-2025

Vietnam

2025 mentoring visit to support acacia and eucalypt breeding, Vietnamese Academy of Forest Science

The Crawford Fund Henzell Award provided me with the invaluable opportunity to visit the ongoing results of *Acacia* forestry research in Vietnam. I accompanied Drs Chris Harwood and Rod Griffin in travelling to the Institute of Forest Tree Improvement and Biotechnology (IFTIB) in Hanoi. I was able to observe how long-term international partnerships translate scientific innovation into real outcomes for communities. As a University of Tasmania student majoring in plant science and sustainable agriculture, I found this experience both beneficial for my understanding of genetics and experimental design, and deeply motivating for my future study and career goals.



Clockwise from top left: Dr Chris, Dr Rod and Dr Kien discussing an Acacia clone trial plantation. Miss Lam, director of the IFTIB Ba Vi facilities, and I examining a ramet in tissue culture. Dr Chris giving a seminar to the IFTIB team on using Genstat to generate 'BLUE's and BLUP's'. My first attempt at learning tissue culture to encourage rooting in clone samples.



A key lesson from this experience was how valuable long-term collaboration is in facilitating progress. In this case, decades of collaboration between Vietnamese and Australian institutions has spurred the *Acacia* industry in Vietnam through ongoing breeding and genetic improvement. My perspective on research and development has broadened significantly thanks to this experience. I can now see scientific and technical advancement as a portion of a wider system that interacts with local livelihoods, long-term plantation resilience (in the face of typhoons, pests and other risks) and the small-holder growers largely responsible for the success of the industry's production.

The first week of the visit allowed me to observe discussions and seminars around data analysis, tree pathology, and polyploid breeding management. The second week provided work experience in flow cytometry, tissue culture, agar media preparation and nursery maintenance that I know will be invaluable in my career. This combination was instrumental in my ability to connect theoretical science and production goals with the technical skills required to create true change.

A recent survey by IFTIB of nurseries across Phu Tho and Hue provinces found there was a lack of access to timely information on new *Acacia* hybrids. Designing a prototype mobile-accessible database of available clones felt like a small opportunity to contribute meaningfully that I was so fortunate to have received. This also reinforced my desire to work at the interface between science and implementation to ensure that research effectively reaches those it is intended to benefit.

Ultimately, this experience furthered my enthusiasm to learn how scientific concepts can be applied to critical global challenges. I saw how rural livelihoods, food security, access to resources, and production sustainability can be improved through research and development only possible through long term international relationships.

This award has broadened my scientific skills and deeply affirmed my aspiration to work in global agricultural development for sustainable futures.



Left: Dr Thuy and Dr Rod examining varieties growing in IFTIB's on-site nursery in Hanoi. Miss Huyen demonstrating the sheer number of ingredients included in the tissue culture medium to encourage growth of Acacia clones. Right: Miss Huyen demonstrating the sheer number of ingredients included in the tissue culture medium to encourage growth of Acacia clones.

Shreya Nidumolu, University of Adelaide

SA-1232-2025

Ethiopia

Accelerating genetic gain in wheat through hybrid breeding in Bangladesh, Ethiopia and Pakistan

As an undergraduate student studying economics and development, I had the privilege of travelling to Ethiopia on a hybrid wheat breeding project with Professor Richard Trethowan from the University of Sydney. The ACIAR project, nearing the end of Phase 1, examines how wheat hybrid combinations responded to the Ethiopian environment. The success of new seed systems is significant to relieve food security stress in sub-Saharan Africa.

The goal of this visit was to better understand how Australian wheat varieties perform in Ethiopian growing conditions. On ground in Kulumsa, it became apparent that we saw that the Australian wheat samples did not perform in an Ethiopian environment, but most alarmingly, this had not been communicated over email and video correspondence. Witnessing this firsthand amplified the importance of in-country collaboration and honest feedback between research partners.



We also had the opportunity to visit molecular biology laboratories in Holeta. This visit gave us an insight into the country's impressive scientific capacity, but also its challenges. The facilities were well-equipped and staffed by scientists, yet many of the essential reagents, markers, and chemicals required were in short supply. The Australian team facilitated a Zoom call between the Sydney and Holeta to explain how to treat the wheat samples as well as exploring ways to improve resource sharing and project coordination. Having members of the Australian team in Ethiopia simplified this process, avoiding miscommunication and saving time.

A particular highlight of the visit was engaging face-to-face with executives and scientists from the Ethiopian Institute of Agricultural Research (EIAR) to create an open dialogue that only works in person. Having the opportunity to sit in on these developmental discussions as undergraduate students was a huge privilege.

My perspective has definitely shifted on international development and agricultural policy. It has given me a real-life context for how technical research and international cooperation make an impactful difference. This experience showed me that as student, it's not about how I can contribute right now but about learning and developing the skills to make a meaningful impact in the future. It's given me a clearer direction for how I can grow as a professional in agriculture and development economics, and a better understanding of the kind of support different projects truly need.

As I reach the end of my undergraduate degree, this experience has strengthened my goal to start a career that has policy impact, particularly through research. I also want to pursue further studies in development economics and public policy. I would encourage other undergraduate students to pursue opportunities like the Hanzell Award. Seeing research in action, meeting scientists and policymakers in another country, and contributing to an international effort to improve food security is incredibly inspiring.

Ava Robertson, University of Sydney

NSW-1228-2025

Samoa

Online version - <https://www.crawfordfund.org/news/henzell-awardee-ava-robertson/>

Soil management in Pacific Islands: investigating nutrient dynamics and the utility of soil information for better soil and farming system management - Pacific Soil Portal Phase 2 SLAM/2020/139



Agriculture in Samoa is predominantly subsistence-based, with most crops grown to meet the needs of individual households or villages rather than for commercial sale. Consequently, the country remains heavily dependent on imported foods, with limited food processing infrastructure and few large-scale plantations.

Taro is the principal crop grown across the islands, but widespread soil nutrient deficiencies exist, and in recent years, below-average rainfall has further reduced yields, leaving many farmers under significant financial strain.

During our visit, we met with farmers including Sala, Polito and Motillie, who are actively seeking cabinet support to access World Bank funding to import Australian livestock under the incoming



FAST party government. Livestock numbers in Samoa are currently at historic lows, with a shrinking genetic pool.

These observations highlighted for me the critical importance of the work being led by CSIRO and ACIAR to build resilience and improve productivity across Pacific farming systems. Soil health knowledge is limited, and there is little awareness of the impacts of livestock introduction on soil compaction. Over the course of the trip, I witnessed both the challenges and the opportunities of conducting agricultural research in this context.

This was an invaluable learning experience. Observing Dio Antille work with the farmers to negotiate, listen and mentor them demonstrated the importance of building trust and co-designing research that meets community needs. It gave me a deeper appreciation for the complexity of international research.

Samoa was one of the most vibrant, welcoming and warm places I have ever visited. Everywhere we went, people greeted us with a smile and a cheerful “how are you?”, creating an atmosphere of openness that blended reggae music and the island’s relaxed way of life. I gained a deeper understanding of Samoan culture by meeting and working closely with students from the University of the South Pacific (USP).

Our team collaborated with USP staff and students to conduct soil surveys as part of the ACIAR Pacific Soil Portal Phase 2 (<https://www.aciar.gov.au/project/slam-2020-139>), led by CSIRO. This collaboration offered an invaluable opportunity to connect with fellow soil science students Tala, Grace, Dante, Pule and Roger. These interactions developed into meaningful professional relationships and personal friendships that I believe will last well beyond this trip.

Under the guidance of Uta Stockmann and Brendon Malone (CSIRO), I contributed to training USP students in soil and land survey techniques which for many was their first experience outside the laboratory. The impact was immediately visible: students and staff expressed their excitement to continue taking field trips and engaging more deeply with farming communities. This hands-on training gave them the confidence and skills to classify and describe soils, strengthening Samoa’s capacity to perform soil survey work and improve local knowledge to contribute meaningfully to agronomic decisions. Ultimately, increasing soil health literacy will play a crucial role in building resilient food systems through sustainable soil management and greater access to data on the Pacific Soil Portal.

As part of this initiative, we also revisited sites first surveyed in the 1960s by the New Zealand Department of Scientific and Industrial Research (<https://samoa-ppsp.landcareresearch.co.nz/>). These legacy datasets have remained largely underutilised in Samoa, so our aim was to document how soils have changed over time and to revitalise the value of this information for local researchers and farming communities. A key priority for ACIAR and CSIRO is quantifying changes in soil organic carbon across the islands, as significant SOC losses have already been reported in neighbouring Fiji and Tonga. Understanding these changes will be critical for guiding future sustainable agricultural intensification in Samoa.

We surveyed over five sites spanning diverse toposequences, soil types, land uses and regions to capture the variability of soil change. Notably, one site had been significantly impacted by the 2009 tsunami, with sand incorporated deep into the profile. The findings from these surveys will provide



an invaluable baseline for understanding soil health and fertility in Samoa and will support both agricultural development and academic research.

I am sincerely grateful to Uta Stockmann, Brendon Malone and Dio Antille from CSIRO, whose guidance was invaluable throughout the trip. Beyond technical training, they shared insights into the life of a researcher and the broader impact of international agricultural research. I learnt so much and I thank them for having me along.

Finally, I extend my deepest thanks to the Henzell family and the Crawford Fund. Without your support, this experience would not have been possible. I never imagined when I began university that I would receive an award enabling me to travel to Samoa and work alongside CSIRO and USP on such a meaningful project. This experience has profoundly shaped my perspective on international agricultural research and inspired me to consider it as a future career.



Amelia Ross, University of Sydney

NSW-1226-2025

Ethiopia

Accelerating genetic gain in wheat through hybrid breeding in Bangladesh, Ethiopia and Pakistan



My short foray to Ethiopia to gain insight into the work of international agricultural researchers was an edifying and rewarding experience beyond anything I could have imagined. Alongside Professor Richard Trethowan from the University of Sydney and my fellow Henzell awardee, Shreya Nidumolu of the University of Adelaide, we crossed the Indian Ocean to the historic and reverential Ethiopia — a land rich in history and origins.

Travelling to such a consequential region for the purpose of such important work felt fitting, discovering in parallel the history and culture of this beautiful country and its people, alongside the significance of the wheat breeding project and of plant breeding efforts in general.

Wheat breeding holds a revered place among agricultural work - the most 'noble' of professions, as we were oft reminded by our kind-hearted companion from ICARDA - lest we forget the contributions of significant breeders such as Norman Borlaug and the Green Revolution they inspired. Ethiopia, the second-largest country by population on the African continent and the tenth-largest globally, urgently needs a stable food system.

The country's agricultural system is based primarily on subsistence and small-scale farming, with large areas dedicated to productive maize, as well as more traditional - and perhaps less land-efficient - crops such as tef. In recent years, the agriculture sector has contributed around 35% of the nation's GDP and employs an estimated 65% of the population. Wheat has only recently become the largest land use in the country, and holds significant potential within the nation. Improving the average yield, which the wheat breeding program aims to achieve, will result in a substantial increase in the wheat available nationally.

The focus on in-country capacity building was something that stood out immensely on this trip. It is not enough to simply establish a wheat breeding program; success also depends on access to markets, storage, transport, licensing, and production capacity, as was discussed on this trip with a wide foray of local stakeholders and international partners. This interconnection of all aspects of the process, and the necessity of clear communication among the working actors, has left a strong impression on me. Global collaboration between institutions underpins agricultural research for the benefit of all, and it was wonderful to be encapsulated in such a diverse team from across the globe, working together for a mutual goal. It is only through this open and willing exchange of knowledge,



ideas, germplasm, and protocols that all countries can secure their own food independence, rather than being subject to the whims of political cycles.

This trip proved to be an energising experience, enlightening me to the on-the-ground workings of international research. It was an exceptional privilege to be welcomed so warmly by both the USYD and Ethiopian teams. I hope to return to this beautiful country again and to further explore the exciting path of international research in agriculture, contributing to global food security.

I am extremely grateful to the project team, particularly Professor Trethowan and ICARDA lead breeder Dr Tadesse, who graciously talked Shreya and me through the project, never rebuffing our tedious questions or basic observations, and for many hours of delightful conversation and global problem-solving.

I would also like to extend my gratitude to the Crawford Fund for supporting this trip, and of course to the Henzell family for their generous financial support and vision in creating this award. I am deeply honoured to be among the inaugural cohort of Henzell Awardees, and I hope this award continues to support the curiosities and dreams of many other early-career researchers.

