Kirkhouse Times

Issue 19 • 2026

Kirkhouse Trust

Cover: Mali Farmers, Field Day, STOL Phase 1

WHAT'S ON THE TABLE?

Behind every breakthrough are people - asking better questions, sharing expertise, and staying with the hard work long enough to make it matter. This issue brings together researchers, collaborators and farmers to show how ideas move from insight to action, and why relationships are often the real engine of progress.

"If you want to go fast, go alone. If you want to go far, go together."
African proverb

CAN ONE CROP CHANGE THE FUTURE OF DIABETES?

Contributor
Professor Florence Ifeoma Akaneme
Genetics and Plant Breeding, University of Nigeria, Nsukka

Across Africa, Type 2 diabetes is rising rapidly, making it one of the fastest-growing health challenges facing the continent.

Nowhere is this more visible than in Nigeria. Today, recent estimates suggest around one in every twelve Nigerian adults lives with diabetes, and many remain undiagnosed, carrying the condition silently as diets and lifestyles change.

For Kirkhouse Trust Principal Investigator (PI) Professor Florence Akaneme, the scale of the challenge is impossible to ignore.

Florence's research journey sits at the intersection of agriculture and health - long before diabetes became a major public health headline. Encouraged by her mentor, Professor EneObong Efiom EneObong, she has explored a range of underutilised vegetables, fruits, tubers, and African legumes. These include African yam bean, Hausa groundnut, and African breadfruit: crops often labelled 'forgotten' despite their nutritional value and cultural importance.

In her plant-breeding lectures, Florence's focus with her students is simple, but increasingly urgent: how can traditional crops support healthier diets and reduce long-term risk factors linked to conditions such as diabetes?

> ***"In Nigeria, these legumes are known to be beneficial for people managing diabetes. It's a 'complete food' delivering energy, protein, fibre and iron."***

One crop sits at the centre of this work: Bambara groundnut (*Vigna subterranea*). Yet Bambara groundnut remains largely absent from modern diets. The challenge is not nutrition, but practicality.

BREEDING FOR RELIABILITY AND UPTAKE

This barrier is shaping Florence's research with a clear and focused objective. Her work centres on breeding for resistance to *Fusarium*, a soil-borne fungus that can severely damage crops, with the aim of improving stability and performance. Breeding lines shared by collaborators in South Africa are being used specifically to test for *Fusarium* resistance, while parallel work on traits such as cooking time and consumer preferences is being led by the South African project team.

Together, these strands reflect a practical goal: crops that are both resilient in the field and workable in daily life.

Across this expanding research landscape, the same question remains: how do we make a traditional crop work in everyday kitchens?

Thousands of kilometres from Florence, another Bambara groundnut PI is grappling with the same practical challenge, but from a very different starting point.

A TASTE THAT STAYED

For Justus Obara, Bambara groundnut first appeared not in a laboratory, but in a kitchen.

Contributor
Dr Justus Obara
PI BBI Project
Egerton University
Kenya, Africa

Dr Obara examines the progress of Bambara groundnut germination in sushi-rolls in the laboratory at Egerton University.

Harvested Bambara groundnut, pods removed.

A QUESTION AT HOME

During childhood visits to the Luhya community of western Kenya, he noticed a familiar meal prepared with unfamiliar seeds mixed with maize and beans. Curious, he asked his sister what they were.

They were groundnuts, known locally as *Tsimbande* - a highly valued traditional food, but not an easy one to prepare. The crop was difficult to shell

A stew of Bambara groundnut that can be served with rice, chapati or ugali.

and slow to cook, which limited how often it could be used and produced. This kind of practical knowledge, passed through families, shaped how the crop was grown and consumed.

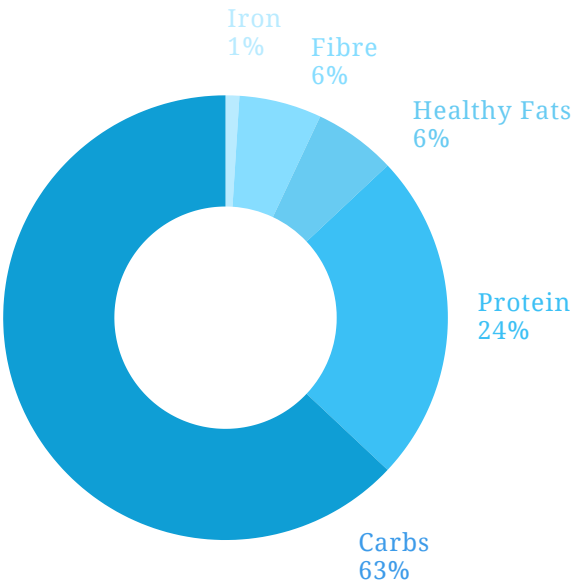
FROM MEMORY TO RESEARCH

Years later, while studying at Egerton University in Kenya, a conversation with his mentor, Dr Okwiri, introduced Justus to Bambara groundnut as an under-researched opportunity crop. He soon realised it was the same *Tsimbande* he remembered from home.

> ***"I didn't know I would encounter Tsimbande again nearly 20 years later - not in the kitchen, but in research."***

A NATURALLY COMPLETE FOOD

Small bean, big nutrition



Weighing Bambara's promise against real kitchen challenges

Huge potential

- Part of local food traditions
- Drought tolerant
- Thrives in poor soils - improves soil fertility
- Nutrient-dense & filling

The challenge

- Hard to shell
- Requires soaking
- Slow to cook, long boiling time

That recognition gave his work direction. Following the conversation, Justus began developing a research proposal on Bambara groundnut and reviewed the literature, where he found the same challenges he remembered - susceptibility to disease, difficult processing, and long cooking times - documented as production constraints.

As his interest deepened, Justus connected with KT during proposal development and received guidance that helped refine his research focus. The literature confirmed it: what had once been a household challenge was a scientific problem - and improving Bambara groundnut could make a meaningful difference for the farmers and families who rely on it.

While Florence and Justus are defining the traits that matter, other colleagues are building the tools to move faster.

BUILDING ON WHAT ALREADY WORKS

After the UK–CGIAR Bambara consortium meeting in Cambridge (Feb 2026), Kirkhouse Trust caught up with Dr Yelina to discuss how new tools are building on existing Bambara work.

Contributor
Dr Natsha Yelina
Head of Group, Crop Breeding Technologies
The Crop Science Centre
Cambridge, UK

NO RESET BUTTON NEEDED

For Natasha, working on Bambara groundnut is defined not just by technology, but by collaboration. Her work sits within a growing international effort, bringing together breeders, geneticists and development partners to unlock a crop with huge potential for food and nutrition security.

The UK–CGIAR Bambara project is a multi-country consortium creating tools and trials to accelerate improved Bambara varieties for climate resilience and nutrition, joining forces with existing programmes - including Kirkhouse Trust's Bambara Breeding Initiative (BBI) - and drawing on established breeding networks, germplasm collections and field knowledge.

> ***"There's so much expertise that comes together…from the field to the very molecular aspect. That's what makes it so exciting."***

ACCELERATING WHAT ALREADY EXISTS

Much of Natasha's work focuses on precision breeding approaches that enable targeted crop improvement without relying on transgenic techniques. While currently refined using UK crops, the ambition is to apply these tools to Bambara groundnut. In this sense, precision tools act as an enabler, not a substitute.

Natasha aims to support researchers and breeders who are already working with a crop that is biologically complex and historically under-resourced.

> ***"We're not starting from scratch."…"What this technology does is help accelerate improvement."***

CARRYING THE KNOWLEDGE FORWARD

Elena Bidash, who began the project as a PhD student and is now continuing as a postdoctoral researcher, plays a key role in translating the precision breeding pipeline from UK systems to Bambara groundnut - helping to bridge laboratory innovation with global application.

Elena Bidash and Natasha Yelina with pea plants used in their research. Credit Lauren Eddie

BECOMING PART OF SOMETHING BIGGER

Working together has been one of the most transformative elements of the work. That approach comes to life most clearly when collaborators are able to connect face to face.

For Natasha, conversations at the consortium meeting in Cambridge were “invaluable”, reinforcing how shared effort helps turn scientific ambition into practical outcomes for farmers. Phil Howell highlighted the simple, practical points shared by Presidor Kendabie, noting that they would “save a great deal of unnecessary trial and error” in crop development. This sense of collective responsibility was echoed by Sean Mayes, Professor at the University of Nottingham and a consultant to Kirkhouse Trust, who described the meeting as “a very positive step towards building a strong research community, dedicated to realising the potential of Bambara groundnut for farmers around the world.”

Together, those conversations underlined a core reality of underutilised crop research: progress depends not on isolated projects, buton people aligning their work - and staying with it over time.

SHARING THE TOOLS FOR CHANGE

While the science behind precision breeding is ambitious, Natasha’s long-term vision extends beyond new technologies:

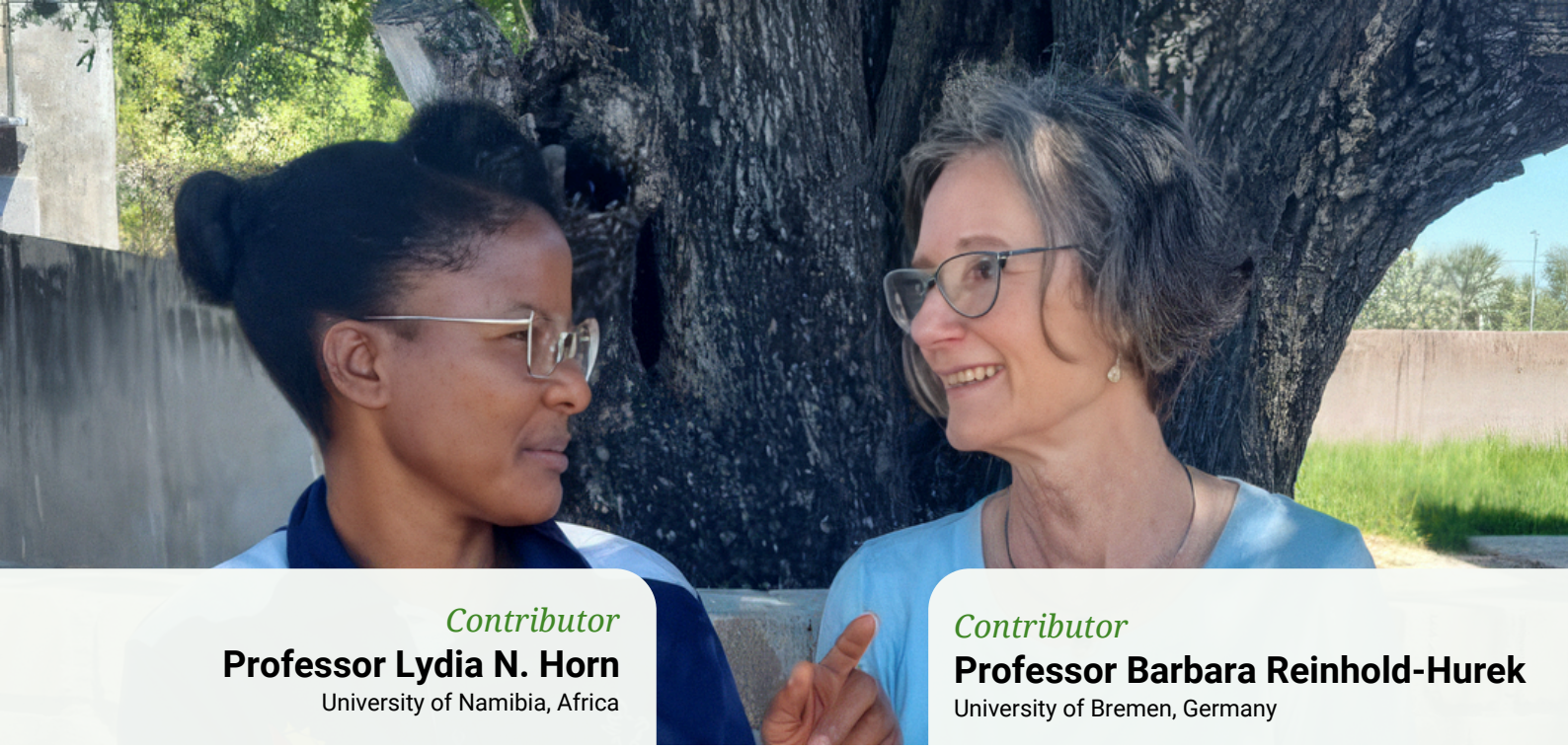
“If we can successfully apply this technology to Bambara, the real goal is to share it. To train scientists in Africa so they can use these tools themselves.”

Building local capacity is key to sustained impact. “If a trait is controlled by a single gene, they could edit it themselves,” Natasha explains. “That’s when you start to see real, lasting impact.”

Although still at an early stage, the momentum is clear.

> ***“There’s a real sense that this could grow into something big.”***

> ***“Something that genuinely makes a difference.”***



Contributor
Professor Lydia N. Horn
University of Namibia, Africa

Contributor
Professor Barbara Reinhold-Hurek
University of Bremen, Germany

WHEN COLLABORATION BECOMES TRUST

At first glance, the photograph tells its own story. Two scientists sit easily together, relaxed and at ease. They look less like formal collaborators and more like long-standing colleagues - even friends.

TWO PATHS, ONE PURPOSE

Professor Lydia Horn, based in Namibia, and Professor Barbara Reinhold-Hurek, working in Germany, come from different disciplines and scientific traditions. But over time, their shared curiosity and complementary expertise have grown into a partnership shaped as much by trust as by science.

Lydia's work is rooted in Namibia's farming realities, focusing on plant breeding and locally adapted crops that matter to smallholder farmers. Barbara, a microbiologist, has spent decades studying how beneficial bacteria interact with plants, helping to unlock more sustainable ways to support crop growth and soil health.

WHERE DISCIPLINES MEET

Their collaboration began through a personal introduction and grew organically, guided by openness and mutual respect. Bambara groundnut soon became a shared focus - a resilient, nutritious crop where breeding and microbiology naturally intersect.

Today, their work brings together improved varieties and regionally adapted biofertilizers, tested under real conditions in Namibia. Recognition, including a German-African innovation award, has followed; but for both scientists, the real measure of progress lies in continuity.

At its heart, their partnership shows what long-term collaboration can look like when it is built on patience, trust, and shared purpose.

FROM PLATFORM TO PRACTICE

Contributor
Dr Prem Mathur
Scientific Leader of STOL
New Delhi, India

A transcontinental programme is backing orphan legumes, starting with Bambara groundnut, to help farmers weather climate shocks.

The climate is making farming riskier. Hotter seasons, irregular rainfall, and repeated crop failures are putting food and nutrition security under pressure. In response, scientists and development partners are looking beyond the usual staples to a set of hardy, under-researched crops often described as “orphan legumes”. These are plants that can thrive in tough environments, but have received limited breeding investment.
That is the thinking behind the Stress Tolerant Orphan Legumes (STOL) programme, designed to test, share, and improve climate-resilient legumes across India and sub-Saharan Africa.

WHY STOL BEGAN

The idea traces back to 2011, when Sir Ed Southern, founder and trustee of Kirkhouse Trust, posed a simple question: could underutilised crops act as reliable alternatives when primary crops fail under climate stress?

Early Kirkhouse Trust-supported research at the University of Agricultural Sciences, Bengaluru began screening underutilised legumes under hot, arid conditions. A practical hurdle quickly surfaced: access to suitable germplasm, the genetic material needed to evaluate and improve crop performance.

Partnerships with the Indian Council of Agricultural Research (ICAR) and the National Bureau of Plant Genetic Resources (NBPGR) enabled structured germplasm exchange under formal agreements. With those foundations in place, the programme expanded internationally and was officially launched in 2018.

PHASE I: BUILDING THE PLATFORM

Phase I was formalised through an ICAR–Kirkhouse Trust Memorandum of Understanding, creating a collaborative platform for the sharing of germplasm focused on dryland farming systems and climate adaptation in India and Africa. Trials ran across nine African countries and India to identify which crops and varieties fit different agroecological conditions, while building durable institutional linkages and an active partner network.

PHASE II: FOCUSING ON DELIVERY

In 2025, a renewed ICAR–Kirkhouse Trust Memorandum of Understanding launched STOL Phase II, shifting from evaluation to targeted crop improvement.

After Phase I assessments, Bambara groundnut was prioritised for structured

breeding. It performs well in low-input systems and tolerates drought and poor soils, traits increasingly valuable under climate stress. Its widespread cultivation and consumption across Africa, and its acceptance among smallholders, particularly women, make it a practical candidate for scaling impact.

Phase II work includes germplasm evaluation and gap analysis, pre-breeding, breeding, molecular profiling, marker-assisted selection, and the development of core collections. Together, these steps help breeders identify promising plants faster and build long-term breeding pipelines in partner countries.

Alongside Bambara, the programme continues to support marama bean (*Tylosema esculentum*) in Namibia and India. Germplasm from Namibia is being experimentally evaluated in Rajasthan as a potential extreme-heat, low-water option.

Platforms only deliver when people stay with the hard work long enough to make progress real.

STOL AT A GLANCE

Origin question: Could overlooked legume crops thrive when mainstream crops fail?

Founded by: Sir Ed Southern (Kirkhouse Trust)

Established: 2018 (Phase I)

Focus: Stress-tolerant orphan legumes

Strength: Cross-border research platform

Countries: India + 9 African nations (Burkina Faso, Ghana, Kenya, Mali, Namibia, Niger, Nigeria, Tanzania, Uganda)

Goal: From exploration (Phase I) to delivery (Phase II)

THE PERSONAL COST OF PROGRESS

Contributor
Dr Presidor Kendabie
PI, BGN Project
Niger Delta University
Nigeria, Africa

Long before Bambara groundnut began to feature in strategies or funding calls, Kirkhouse Trust PI Presidor Kendabie made a decision that would shape his career.

He chose to stay with it.

Bambara groundnut is drought-tolerant, nutritious, and familiar to smallholder farmers across Africa. Yet for decades it has sat on the margins of scientific attention - difficult to work with, poorly resourced, and largely absent from mainstream breeding programmes.

While many researchers gravitated towards crops that were easier to fund, publish, or scale, Presidor went in the opposite direction.

That conviction has guided more than fifteen years of his work.

> ***"I realised early on that this was a crop with real potential. Not just in theory, but for farmers living with constraints every season."***

THE HARDER PATH

Presidor's interest in crop science began during his undergraduate studies in Nigeria, where early exposure to germplasm characterisation revealed how genetic diversity could be used to solve practical problems.

Further training in genetics and plant breeding took him to China, before he returned to Nigeria to work on crop improvement and teach genetics and breeding.

A pivotal moment came during his PhD studies in the UK. Originally focused on mangrove biology in the Niger Delta, his research plans were abruptly halted due to regional insecurity, forcing a complete change of direction. What could have ended his doctorate instead clarified his purpose.

Redirected toward Bambara groundnut under the supervision of Professor Sean Mayes, Presidor recognised a crop that mirrored the systems it served - resilient, undervalued, and expected to perform without intervention.

> ***"Working on Bambara felt like taking responsibility. If serious science doesn't focus on crops like this, then science itself is failing people."***

STAYING POWER

Since completing his PhD in 2014, Presidor has stayed with Bambara groundnut even during periods when the crop attracted limited research funding and scientific attention. Rather than chasing short-term outputs, his

work has focused on the unglamorous foundations of crop improvement: building genetic panels, tackling photoperiod sensitivity, and developing lines that behave reliably across environments.

It is quiet, incremental work building the foundations. But without it, progress doesn't happen.

Over time, his research has contributed to strengthened breeding resources and the sharing of pre-breeding material is shared with programmes in Nigeria and South Africa, rather than remaining confined to laboratories.

> ***"For smallholder farmers, reliability matters more than promise. A crop that works when conditions are hard is worth far more than one that only shines under perfect trials."***

THE COST

That commitment has not been without sacrifice.

Today, Presidor's professional life spans continents. While his family is based in the UK, his current research keeps him in the United States - a distance that underscores the personal cost of sustaining long-term scientific work across global systems. His work demands choices, and sometimes those choices mean being away from the people he loves. Despite that distance, his focus remains firmly rooted in Africa.

Bambara groundnut is not an abstract research subject to him; it is tied to the landscapes he grew up with and to the future he believes deserves serious scientific investment.

A tough nut to crack
Five targets for improvement

- Improved varieties
- Disease-resistant
- Higher yields
- Better local adaptation
- Reduced cooking times

WHAT IT TAKES

In a research culture that often rewards novelty, speed, and proximity to resources, Presidor's career is defined by staying. Staying with a crop others ignored. Staying with problems that take time. Staying accountable to the people who stand to benefit.

By committing his career - and accepting personal distance along the way - Presidor has helped bring Bambara groundnut out of obscurity and into serious scientific conversation.

For him, that was always the point.

The next step: farmers deciding the crop fits their fields.

F1 hybrid plants grown in glasshouse trials

Farmers and scientists at the Bambara groundnut awareness programme

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Contributor
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FARMERS DIG FOR NEW CROP OPTIONS

Dr Kuldeep Tripathi and Dr Bhaskar Bajaru played a key role in organising the awareness programme on Bambara groundnut held on 2 April 2026 at the ICAR–NBPGR Regional Station, Hyderabad, bringing together farmers and scientists to explore whether the crop could work under local farming conditions.

Around 20 farmers from Wanaparthy district, Telangana, joined scientists from ICAR-NBPGR and ICRISAT to discuss how Bambara groundnut performs under rainfed conditions, how it is grown, and where it might fit alongside existing crops.

Scientists shared practical advice on sowing, crop management, and seed handling, and introduced different seed types held at NBPGR. Rather than promoting a single answer, the discussion focused on helping farmers judge whether the crop makes sense for their own fields.

LEARNING TOGETHER, FARMER TO SCIENTIST

Interactive sessions encouraged farmers to speak openly about the constraints they face, including sandy soils, limited irrigation, and the need to manage both crops and livestock. Scientists responded to these field-level questions, creating a genuinely two-way exchange essential to ground research in everyday realities.

This dialogue helped shape a clearer picture of how Bambara groundnut might be evaluated beyond research stations.

Discussions moved from detail to possibilities. Dr Tripathi and Dr Bajaru walked through how Bambara groundnut is grown, how seed is handled, and what farmers might expect under rainfed conditions.

Farmers, in turn, considered where the crop could fit alongside what they already grow. Real germplasm from ICAR-NBPGR turned ideas into something tangible.

SEEING THE CROP

A visit to experimental plots allowed farmers to observe crop performance and variability among accessions first-hand. Seeing differences in pod formation and plant behaviour in the field proved critical in building confidence and sparking informed debate.

For many participants, it was the first time Bambara groundnut had moved from an abstract idea to a visible option.

Farmer Mr Anand Kumar was struck by the high number of pods per plant compared with the groundnut variety he currently grows.

> ***"I was impressed by the number of pods per plant."***

The observation highlighted its yield potential and nutritional value, with interest if seed becomes available.

Mr N Manyam, who keeps livestock, saw potential for both fodder and grain during the summer months.

> ***"It becomes difficult to get sufficient feed in summer."***

WHAT NIREN VILLAGE FARMERS SAY

Bambara groundnut could provide fodder while also improving soil conditions for the next crop.

Farming without irrigation, Mr Posanna saw Bambara groundnut as a resilient, low-input crop for diversifying alongside sorghum, maize, and pigeonpea.

> ***"Since my field has no irrigation facility, I plan to introduce Bambara groundnut."***

Together, these perspectives capture early STOL Phase 2: testing relevance, building understanding, and supporting informed farmer choice. Modest in scale, the programme shows how research-led collaboration reaches the field, one plot at a time.

THE NEXT GENERATION

Science matters. Systems matter. People matter most. Julia Sibiya speaks for herself.

Contributor
Dr Julia Sibiya
VACS Capacity PL
CIMMYT
Nairobi, Kenya
Honorary Associate Professor
University of KwaZulu-Natal
South Africa

I am a plant breeder and Capacity Lead for the Vision for Adapted Crops and Soils (VACS) at The International Maize and Wheat Improvement Center (CIMMYT), building the next generation of African scientists working on climate-resilient, nutritious, underutilised crops. I also serve as an Associate Professor at the University of KwaZulu-Natal, bringing over 30 years of experience in research, mentorship, and partnership building across Africa.

My journey into science began in Zimbabwe, where I grew up in a large family and developed a passion for mathematics and science in high school. I was inspired by female teachers who challenged stereotypes and showed me that women can succeed in scientific fields.

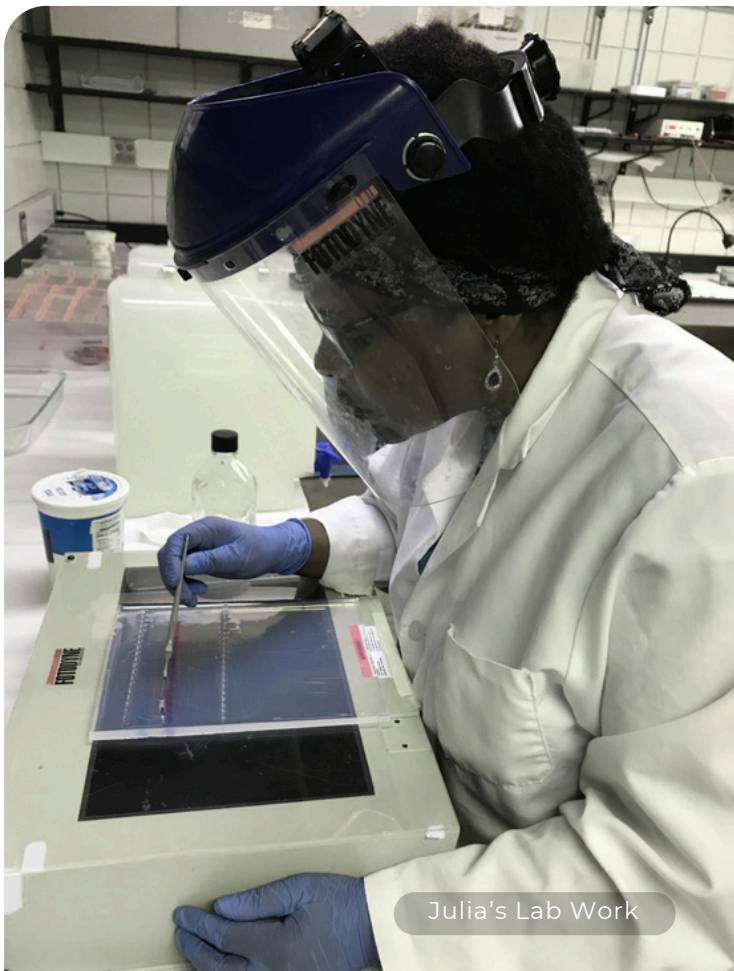
Although I initially aspired to become a medical doctor, exposure to agriculture during an open day at the University of Zimbabwe, together with witnessing the impact of farming in my family, redirected my path toward plant science. I realised agriculture was not just farming, but a science. What started as an alternative became a lifelong mission to improve food security and livelihoods through science.

Like many women in science, my journey has not been without challenges. Working in a male-dominated field required me to continuously prove my capabilities while balancing professional responsibilities with family life.

I pursued my PhD while raising two young children, often alone without extended family support, which demanded resilience, discipline, and strong time management.

Through mentorship, determination, and a strong support system, I progressed into leadership roles, becoming one of the first African women to become a dean and head of school in the College of Agriculture, Engineering and Science at UKZN, and a recognised leader in plant breeding.

Today, I am deeply passionate about inspiring the next generation, especially young girls to pursue careers in science.



Julia's Lab Work

My message is simple:

> ***"You do not need to have everything figured out, and you do not need the perfect start. You only need to believe that your story matters, your voice matters, and that you matter."***

As an African proverb reminds us,

> *"If you think you are too small to make a difference, you haven't spent the night with a mosquito."*

I encourage young women to find their voice, stay focused, keep learning, and embrace challenges as opportunities for growth. Never underestimate your impact, because with determination, science can transform lives and shape the future.

32%

Globally, women make up around one-third of researchers, despite strong participation at school and university level. Closing this gap is vital to tackling challenges such as food security and climate resilience.

PEOPLE FIRST

Contributor
Jackie Campbell
PA to the Senior Management Team,
Kirkhouse Trust
Oxford, UK

I don't have a science degree.

I've never been in a lab.

My background is in education and the commercial world, where I learned one thing that shapes everything I do: people come first. People buy from people. People trust people. And people make progress with people.

Since joining Kirkhouse Trust six months ago, I've seen that truth play out every day. Scientists from around the world, united not just by knowledge, but by passion. Purpose. Belief.

It's contagious. And it reminds me that progress - in any field - doesn't start with ideas or data. It starts with people.

That's the real power of Kirkhouse Trust. Not just the science, but the people behind it.

APPRECIATION

With thanks to all the researchers, farmers, partners, and colleagues who shared their time, insights, and experiences to make this issue possible.


Kirkhouse Trust Combined Meeting, Zimbabwe September 2025

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