

BONGIWE MCATA

Turning lived experience into research for resilient communities

Her journey between township and rural life taught Dr Bongiwe Mcata that agriculture is about far more than production. Today, the University of Fort Hare researcher brings together agricultural economics, food systems and indigenous knowledge to explore how water, food, livelihoods and climate resilience can be addressed as interconnected challenges.

Article by Kim Trollip.

From family gardens to food systems, Mcata's research is rooted in the communities and experiences that shaped her understanding of agriculture, livelihoods and resilience. In Mdantsane, where space was limited, her mother grew spinach in the family garden. In Perksdale Location in the Eastern Cape, where Mcata's rural roots lie, the family cultivated maize, grew vegetables and kept chickens, pigs and goats. Livestock could provide food for the household but could also be sold to generate income.

Agriculture was therefore never simply about growing food. "It is about livelihoods, dignity, resilience, culture, identity and the ability of communities to sustain themselves," she says.

Looking back, Mcata can see that many of the questions she explores as a researcher were already taking shape around her. Why are some communities able to use the resources available to them to create livelihoods and resilience, while others remain vulnerable to food insecurity, climate shocks and limited economic opportunities?

Her university education gave her the theories and analytical tools to understand what she had witnessed growing up. Her research has since taken her beyond the farm and into the bigger systems that determine how people produce, access and consume food, manage resources and build livelihoods.

Learning to ask better questions

Mcata's interest in agricultural economics began at school, when she took economics as a subject and became fascinated by how people make choices when resources are limited, and how economic decisions at household, community and policy levels can shape livelihoods and opportunities.

Her own life had already given her a practical introduction to those questions. Born in Mdantsane and with rural roots in Perksdale Location in the Eastern Cape, she moved between township, village and different schooling environments,

eventually completing her matric in Pretoria. Those experiences exposed her to different cultures, circumstances and ways of understanding education and opportunity.

Agricultural economics appealed to her because it brought together two worlds she already understood: agriculture and economics. She went on to complete a Bachelor of Science in Agriculture, majoring in Agricultural Economics and Economics, followed by Honours, a Master's degree and a PhD in Agricultural Economics.

It was during her undergraduate years at the University of Fort Hare, however, that she began to discover what research could mean to her.

As a Xhosa-speaking student, Mcata assisted lecturers with fieldwork in communities across the Eastern Cape. One of her first research experiences was as an enumerator on a project involving the Zanyokhwe Irrigation Scheme. She also became involved in research on open-pollinated varieties (OPVs), working alongside postgraduate students from Agronomy and assisting with questionnaires.

Those early experiences opened her eyes to research in a different way. She realised that research was more than studying in a classroom, reading articles or writing assignments. It involved travelling to communities, listening to people's experiences, asking questions, collecting information and making sense of what they were telling her.

She also discovered that she genuinely enjoyed the process. "I was already someone who enjoyed learning, writing and socialising, so fieldwork brought these interests together," she says. "I could travel to places I had never been, meet different people, learn from communities and contribute to research."

As a student, she joked that she was able to "travel, learn and get paid for it". But beneath the humour was an early insight into the kind of researcher she wanted to become. Her curiosity went beyond the subject of the research; she was equally interested

in the people, their experiences and the knowledge they could contribute.

That people-centred approach has remained an important part of her career. For Mcata, engaging with communities is not separate from the research itself. It is a way of understanding the problem more fully – and ensuring that the knowledge generated has relevance beyond the university.

Agriculture is bigger than the farm

Today, Mcata sees food systems as a web connecting people, land, water, knowledge, technology, production, markets, institutions, culture and households.

That broader view is important when considering rural communities facing water constraints. A technically effective agricultural intervention may still fail if people cannot afford it, maintain it or incorporate it into their lives. Agricultural economics provides a way of bringing these dimensions together – asking whether an intervention or technology works technically and ensuring it works for the people who will use it.

"Can people afford it? Is it accessible? Does it respond to their realities? Does it create or strengthen livelihood opportunities? Will communities adopt it? And, importantly, can it be sustained over time?"

Those questions are particularly important for smallholder and family farmers in rural communities, where the decision to adopt a new water-saving technology or agricultural practice is rarely about the technology alone. The upfront cost may compete with immediate household needs. Access to finance, markets, infrastructure, extension services and information all matter. Previous experiences with government or development projects can influence people's willingness to try something new, while gender roles, access to land and decision-making power can also shape what is possible.

Climate variability adds another layer of uncertainty.

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Bongive Mcata holds a PhD in Agricultural Economics. Her research interests are focused mainly on inclusive agricultural development, food security, and socio-economic transformation within South African communities.

For Mcata, a sustainable solution should make sense environmentally, economically and socially. "People cannot be expected to protect resources for the future if the proposed solution makes it harder for them to meet their needs today."

Her understanding of these questions is also personal. She grew up between two worlds: the peri-urban environment of Mdantsane and the rural landscape of Perksdale. At the time, she did not have the academic language to describe many of the practices she encountered as indigenous knowledge. She simply knew them as part of life.

In the village, she encountered mud houses and the use of cow dung to maintain floors. Her grandmother valued traditional foods such as *umfino*, including bitter leafy vegetables, and *mleqwa*, traditional free-range chicken.

Trips to collect water from the river could also become opportunities to pick *iziphingo*, a wild fruit that was part of the local environment. Before taps were introduced, the river was a source of water. The family collected rainwater and managed livestock using knowledge passed down through generations.

Only later did Mcata recognise how much knowledge was embedded in these ordinary experiences: knowledge of food, water, livestock, plants and the local environment. It taught her that indigenous knowledge is deeply place-based, practical and intergenerational.

HERS-SA



In 2025, Dr Mcata won the Emerging Young Women Leaders Award (HEWLA) presented by the non-profit organisation Higher Education Resources Services South Africa (HERS-SA). This recognition honours exceptional women who are shaping the future of higher education.

Bringing knowledge together

Mcata says scientific knowledge can provide new technologies, evidence and analytical tools, while indigenous knowledge provides generations of place-based experience and understanding. She sees research as a space where different forms of knowledge can meet.

Communities are not simply recipients of knowledge, she argues. They are knowledge holders.

Researchers therefore need to listen before arriving with predetermined solutions. Local experience can reveal practices, risks and opportunities that may not be visible from an academic perspective, while science can contribute methods for testing, monitoring and adapting those practices.

The aim is co-learning and co-creation: researchers and communities working together to develop solutions that are scientifically credible while remaining grounded in local realities.

That philosophy comes together particularly clearly in one of Mcata's most meaningful projects.

A school becomes a living laboratory

During her five-year tenure at the University of Mpumalanga, Mcata worked on a R2.5 million Water Research Commission and Old Mutual Foundation-funded project. She remains associated with the university as a Research Fellow, allowing her to continue her involvement in research projects, grants and the students she supervises.

Entitled *Demonstrating Climate Resilience in Four Rural Schools with Limited Water Availability by Enhancing Food and Nutrition Security through Innovation and Science Transfer*, the project involved four rural schools in Limpopo, the Eastern Cape, Free State and Mpumalanga.

The project transformed underused school spaces into climate-smart nutrition gardens, using approaches such as rainwater harvesting, drip irrigation, mulching and indigenous crops. The schools became "living laboratories" where learners, educators and communities could explore agriculture, science, environmental stewardship and practical problem-solving. The project also supported three postgraduate students – one PhD

candidate and two female MSc Agriculture bursary recipients.

"One of the project's most important lessons," adds Mcata, "Was that innovation does not necessarily mean inventing something completely new. Rainwater harvesting, mulching and indigenous crops are not new ideas. Innovation can lie in bringing existing knowledge, technologies and resources together differently for a particular context."

Technical success does not automatically equal development success. A solution must be usable, affordable, maintainable and appropriate to the community. Its benefits also need to survive beyond the point when the researchers leave. Mcata believes this is what meaningful research impact looks like: knowledge moving beyond a report or publication and becoming something that people can use.

Learners and educators began engaging with food production, water management and climate resilience. The gardens became places where classroom learning could connect with the realities of the environment around them. "Most meaningful for me was seeing people begin to take ownership – asking how practices could be maintained, adapted and used in their own circumstances," she adds. "That is an important moment for a researcher because it tells you that the knowledge is no longer yours; it has become something that people can use and make their own."

Research for a changing rural landscape

Looking ahead, Mcata believes South Africa needs to stop treating water security, food security, rural development and climate change as separate challenges. For rural communities, they are experienced as one interconnected reality. Building climate-resilient, water-smart food systems will require more than infrastructure and technology. It will require water-use efficiency, appropriate technologies, finance, markets, extension support and relevant information – alongside greater recognition of the knowledge already held by communities.

She is particularly passionate about creating opportunities for young people and women in rural areas. Rural development, she argues, should extend beyond agricultural production to include processing, agribusiness, environmental management, technology and entrepreneurship. Young people should be able to see rural areas as places where they can build meaningful futures, rather than simply places they need to leave.

This systems perspective also shapes the kind of researcher she believes the next generation will need to become.

They will have to be comfortable with complexity and uncertainty, and able to work across disciplines. A water challenge might require insights from agriculture, economics, engineering, environmental science, sociology and policy. Technical and digital skills will remain important, but so will the ability to listen, collaborate, communicate and translate complex ideas for different audiences.

Above all, Mcata advocates what she calls a "both-and" mindset: scientific innovation alongside indigenous knowledge; economic

development alongside protection of natural resources; new technology alongside local practices; global thinking grounded in local realities.

And she believes young researchers should remain humble enough to say, "I do not know" – and then learn from someone outside their discipline or from someone whose knowledge comes from lived experience.

Mcata's commitment to taking learning beyond the classroom has also been recognised nationally. In 2025, she won the Emerging Young Women Leader (Academic) at the 2025 HERS-SA Higher Education Women Leadership Awards and took second place in the EDHE Learning and Teaching Excellence Awards for her work integrating entrepreneurship into the BSc Agriculture curriculum.

The recognition reflects her belief that agricultural education should prepare students not simply to understand the sector, but to identify opportunities within it and contribute to solving real-world problems. At a University of Mpumalanga seminar in 2025, she argued that research should not remain in "library shelves or hard drives", but should generate income, create jobs and provide solutions for communities.

"If, years after a research project has ended, a learner remembers what they learned, a community continues using a practice, or someone is better equipped to respond to a challenge because of something we contributed, then I know the research has had a life beyond the university."

The knowledge comes full circle

Perhaps the most personal measure of Mcata's research impact is the connection she sees between where she came from and what she is now able to contribute. She grew up experiencing many of the realities she now studies: rural livelihoods, agriculture, traditional foods, water challenges and community-based ways of managing resources. She works with communities and students confronting some of those same challenges.

For her, impact can be found in a learner who becomes curious about agriculture or science, an educator who gains a new teaching resource, a household that learns a practical way of producing food, or a community that gains confidence in its own knowledge.

Her ambition is not simply to build a body of publications and

projects. She wants her research to be rigorous enough to contribute to scholarship, but grounded enough to be felt in everyday life. And perhaps that brings her journey back to where it began: with the ordinary things she saw, experienced, and questioned as a child, such as the family garden, the livestock, the river, and the food on the table.

"If, years after a research project has ended, a learner remembers what they learned, a community continues using a practice, or someone is better equipped to respond to a challenge because

of something we contributed," she says, "then I know the research has had a life beyond the university."

Now, through her research and teaching, Mcata hopes to help the next generation recognise the value in those questions – and in the knowledge and experiences they bring with them.



To read about Bongiwe Mcata's research, visit: <https://orcid.org/0000-0002-6066-4007>

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Mcata has worked with schools in Limpopo, the Eastern Cape, Free State and Mpumalanga to transform underused school spaces into climate-smart nutrition gardens.

BONGIWE MCATA - RESEARCH IN FOCUS

Building climate-resilient food systems in water-constrained rural communities

Mcata's research journey has evolved from a focus on agricultural economics and production towards a broader understanding of the systems that shape rural livelihoods. Her work increasingly brings together agriculture, water, food security, climate resilience and indigenous knowledge, reflecting her belief that these challenges cannot be understood in isolation. Her experience of working directly with communities has been central to this evolution.

Selected outputs

- Garden ownership as a solution to food insecurity in urban areas of South Africa: case of food gardens in Alice Town, Eastern Cape province, *Journal of Agribusiness and Rural Development*, 2019, <https://bit.ly/3TSxHZr>
- ICT education and determinants of acceptance amongst smallholder farmers in Mbombela, South Africa, *South African Journal of Agricultural Extension*, 2024, <https://bit.ly/4yiKv9H>
- The determinants of willingness to pay for organic fertilisers: the case of smallholder vegetable farmers in Mpumalanga, South Africa, *Frontiers in Sustainable Food Systems*, 2026, <https://bit.ly/4zzgaVl>

Featured project

Demonstrating Climate Resilience in Four Rural Schools with Limited Water Availability by Enhancing Food and Nutrition Security through Innovation and Science Transfer

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