



2014 AWARD Fellow
Gloria Makhambra

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Position	Forest Research Officer
Institution	Forest Research Institute of Malawi (FRIM)
Country	Malawi
BSc	Forestry, Lilongwe University of Agriculture and Natural Resources (LUANAR), 2009
Mentor	Elizabeth Bandason, Department of Forestry and Horticulture, LUANAR
Research Area	Development of tree propagation, establishment, and regeneration technologies to assess the effects of conservation agriculture on the productivity and sustainability of smallholder farming systems.

Gloria Makhambra says agriculture is in her blood. The second born in a family of three girls, she describes her father as a natural farmer, and she followed in his footsteps. “We never had to buy maize—a staple food in Malawi—because my dad grew it,” she recalls. “I saw his investment, and that sparked my interest in the land.”

When it came time for university, “the choice was obvious,” laughs Makhambra. “I felt agriculture would enable me to have an impact on many Malawians, especially smallholder farmers.” After completing a degree in Forestry at LUANAR, her first job was at a bioenergy resources company, where she promoted the cultivation of the *jatropha* tree, which is used to make biofuel oil. “My main duty was to sensitize farmers about this exceptional tree, and to promote the benefits of planting it,” she says. Makhambra will soon complete a master’s degree in Soil Science at the same university.

Now a forest research officer at FRIM, Makhambra is investigating the effects of conservation agriculture on soil fertility, looking at the physical, chemical, and biological properties. She says most of the soil in Malawi is degraded and needs improvement. “Conservation agriculture with trees, or CAWT, is also known as ‘evergreen’ agriculture,” she explains. “CAWT is the combination of agroforestry and conservation agriculture on the same piece of land. This technique is beneficial in sustaining the supply of nitrogen in the soil to enhance plant nutrition.”

Makhambra is concentrating on *Tephrosia vogelli*, which is known as a fertilizer tree. “This tree helps to loosen the soil and improve its moisture, carbon, and nitrogen content,” she explains. Other fertilizer

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AWARD is a career-development program that equips top women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills through tailored fellowships. AWARD is a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women.

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trees include *Tephrosia candida*, *Sesbania sesban*, and *Grilicidia*, or a combination of these can be used. Her research includes trying to determine to what extent CAWT improves soil fertility (physical, chemical, and biological properties). “My plan is to test this technology in all agro-ecological zones of Malawi and in different soil types,” she says. “My objective is to see the yields and incomes of Malawian smallholder farmers increase as their soil fertility improves through the adoption of this technology. I really hope they will adopt it.”

Makhambera’s work as a forest research officer can be physically demanding, requiring her to sometimes climb steep hills in order to conduct vegetation and biodiversity surveys—and some people find this hard to accept. “I often get the sense that people think I should be a cashier or a secretary because I’m a woman—that I have no business doing research,” she smiles. But she is reminded that her role model—her father—taught her that she can do anything she puts her mind to.

Makhambera hopes to eventually earn a doctorate and become a professor of soil science at a leading university. “I want to be an active professor, imparting my expertise to relevant people—students, farmers, and all sectors that need my services,” she resolves. “I also want to keep on top of new technologies like GIS [geographic information systems] and analytical software. My aim is to impart information to smallholder farmers, and to the rural development community at large.”

As an AWARD Fellow, Makhambera looks forward to regular connection with her mentor, a former AWARD Fellow. “I know I will gain confidence and learn to believe in myself more so I can reach my goals,” she says. “My position as an AWARD Fellow will also help to make me more visible through participation in conferences and networking opportunities. I’ll learn how other people are doing things, and I’ll be able to overcome some of the challenges I face.” She plans to share her newfound knowledge with her peers and subordinates, such as leadership, writing, and presentation skills, as well as conflict mitigation techniques.

In her spare time, Makhambera is a farmer herself. “I have five acres of land for maize and groundnut intercropping,” she says proudly. She also raises and sells chickens, and uses the manure for compost. “Like my father, I don’t need to buy vegetables because I have a garden,” she says. “I love to use the resources at hand—the rain and the soil.”