AWARD
African Women in Agricultural Research and Development

Profile

2011 AWARD Fellow

Catherine Sakala

Position	Tsetse control biologist
Institution	Ministry of Agriculture and Livestock
Country	Zambia
BSc	Entomology and parasitology, University of Zambia, 2008
Mentor	Lily Sinyangwe, Principal research scientist Central Veterinary Research Institute Department of Veterinary and Livestock Development

Research area: Focusing on practical measures to control tsetse fly in rural areas.

Catherine Sakala, a tsetse fly control biologist with Zambia's Ministry of Agriculture and Livestock, is determined to help control trypanosomosis in cattle and humans. Trypanosomosis is the most pervasive and serious cattle disease in sub-Saharan Africa, which kills between three and seven million cattle annually and costs farmers millions of dollars in lost production and treatment costs. It is transmitted mainly by blood-feeding tsetse flies that infect susceptible animals and humans with the causative trypanosome parasite. An estimated 48,000 people die annually from the disease, known as sleeping sickness in humans, according to the International Livestock Research Institute.

"Trypanosomosis is considered to be one of the most important constraints to rural development in Africa, and Zambia is no exception," says Sakala. "There are whole regions that are so infested that no livestock can survive there at all because farmers can't afford to raise their animals in a protected environment or to buy the prophylactic medicines. This fertile land could be used for agriculture, but it's simply not available. I'm involved in trying to prevent the disease through controlling of the vector (tsetse fly), using the most environmentally friendly methods available."

Working with livestock farmers in remote areas is somewhat of a stretch for this sophisticated young researcher who grew up in urban Lusaka. "I always loved science and was studying molecular biology at university initially. I had a friend in entomology and her field work with butterfly nets and all looked like so much fun that I considered it," says Sakala with a laugh. "People warned me that studying natural sciences is tough, but I said, 'Let me prove that I can do it.'"

Not one to shy from a challenge, after graduation Sakala took a job with the Ministry of Agriculture and Livestock located 800 kilometers from home, where she soon found there was no funding available for research or field work. "I learned to be creative. I couldn't just sit in the office and do nothing, so I bought slides with my own money and got the veterinary assistants to collect livestock blood samples for me from animals in suspected trypanosomosis-affected areas, and I wrote up reports on what I found, even if it was about other diseases, such as East Coast fever."

Her supervisors recognized Sakala's ingenuity, and she was transferred to another site where she could conduct

hands-on research on tsetse fly vector control. She was put in charge of a 25-kilometer long, 8-kilometer wide artificial tsetse barrier along the Malawian border. "The barrier was constructed following the death of the local chief's daughter from sleeping sickness," says Sakala.

Sakala and her team trained local residents, who will train others, to construct the barrier using black screens of insecticide-treated cloth called odor-baited targets. "We use about 676 odor-baited targets that are replaced twice annually during service maintenance," she explains. "The insects are attracted to the barrier because the cloths are baited with chemicals that smell like cattle urine, breath, and sweat." With the help of field staff from the tsetse section headquarters in Lusaka and the Isoka District, Sakala also established sentinel herds to help monitor the effectiveness of the tsetse barrier.

Sakala produced a poster on her work, focusing on the challenges and causes of vandalism to the odor-baited target barrier in north-east Zambia, which she presented at the International Scientific Council for Trypanosomiasis Research and Control Conference, held in Mali in September 2011. She received a certificate for one of the best five posters at the meeting.

While livestock is her primary focus, Sakala is equally concerned about people who contract sleeping sickness, a disease caused by a tsetse fly bite, which attacks the central nervous system. "Sleeping sickness is often misdiagnosed in Zambia as malaria or even as the result of witchcraft because there is no deliberate policy to screen for the disease, even in places that are tsetse infested," she says. "People die without knowing they had it. It really disturbs me because this disease is preventable and treatable. I want to see proper diagnosis being done, so patients can be treated before it is too late."

Sakala has submitted a proposal to Irish Aid to do further research on the characterization of trypanosomes in tsetse flies in relation to disease in both livestock and humans. She would also like to pursue a master's degree in sustainable development in relation to climate change, with a focus on agriculture and environmental protection and management.

"I am very passionate about pest management and control, but working in rural areas has exposed me to many environmental problems, such as deforestation, the loss of natural plant genetic resources and biodiversity, and the need for better quality agricultural land," observes Sakala. "If we destroy our land, we will go backwards in terms of food security and sustainable development in Africa. I feel that I need to combine studies in pest control and land management. Being a scientist means helping people by looking to other disciplines as well."

Sakala derives the greatest satisfaction from her work when she sees change in areas where trypanosomosis prevention and treatment are practiced. "It's rewarding to see healthy animals and happy, healthy farmers," she says. "When I visit a community, people offer me food and are very cooperative, which is their way of saying, 'Thank you, you're doing a good job.' That means a lot to me because farmers have to see that something works before they will adopt it."

As an AWARD Fellow, Sakala says she appreciates the professional support she is receiving. "AWARD is a unique opportunity for female scientists, who are often marginalized," says Sakala. "It is wonderful to have a group of people backing you. AWARD has already helped me to realize that if women are at the forefront of farming in Africa, then I should be there too, as a researcher, who is even better equipped because I am specialized. It has been a wake-up call for me to recognize my own role in fighting poverty in my country. As we say in Zambia, if a thief comes to your house, you must do all you can to drive him out, and not expect your neighbor to protect you."

Sakala is one of a growing number of African women agricultural scientists who have won an AWARD Fellowship. AWARD is a professional development program that strengthens the research and leadership skills of African women in agricultural science, empowering them to contribute more effectively to poverty alleviation and food security in sub-Saharan Africa. AWARD is generously supported by the Bill & Melinda Gates Foundation and the United States Agency for International Development. For more information, visit www.awardfellowships.org