



2013 AWARD Fellow
Claire Mack Mugasa

Position	Lecturer
Institution	Makerere University
Country	Uganda
PhD	Medicine, Royal Tropical Institute, Amsterdam, 2010
Mentor	Professor Christopher Rubaire-Akiiki Department of Veterinary Parasitology and Microbiology, Makerere University

Research area: Generating informative knowledge on vector-host interaction for designing control strategies of vector-borne diseases in the cattle corridor of Uganda.

Claire Mack Mugasa's choice to pursue a career in medicine is not surprising given that her mother is a nurse and her father a doctor. Initially, she wanted to become a doctor, but her father encouraged her to study veterinary medicine instead. He suggested that she could be sure she would be helping people to put enough food on their tables—a point she found most compelling. But the final push came from her classmates, who told her that this discipline was too hard for girls. "That made me determined to prove them wrong," she says.

Mugasa's undergraduate studies focused on veterinary medicine and surgery. During her graduate studies and research assistantships, she was introduced to diseases that affect both animals and humans. Her PhD research involved finding improved ways to diagnose trypanosomiasis (sleeping sickness) and leishmaniasis in people. Both diseases are widespread in Africa and are transmitted from animals to humans by biting insects. The tsetse fly is the common culprit in the case of sleeping sickness and the phlebotomine sandfly for leishmaniasis, though other flies are also vectors.

Mugasa is currently looking at ways to efficiently control trypanosomiasis in people and livestock in the rural Kaberamaido district in Uganda. The work entails screening animals for the parasite that causes the disease and treating those that are infected to prevent it from spreading.

There are two aspects to this work. The first is to develop economical and easy-to-use diagnostic tools that can be applied in the field by trained veterinary officers and animal health workers. "The ease of use is critical," says Mugasa. "Labs in rural areas are very basic. Workers need something that requires minimal equipment or inconvenience."

The second area of research involves identifying the disease vectors—the biting flies. There are several potential candidates among different blood-feeding flies in Uganda, so Mugasa is conducting surveys to identify which types are present. She then uses molecular tools to see what each type feeds on, including wild and domestic animals, or humans, and if they are transmitting diseases.

Mugasa plans to extend this work to study the population structure of a family of biting flies, called *Tabanidae*, in the peri-urban areas around Lake Victoria, where trypanosomiasis is endemic. The region is well-suited for goats and zero-grazed or tethered cattle, which are almost exclusively tended by women. When livestock contract the diseases, it reduces milk production and makes the animals too weak to work. The food security, nutrition, and income of farming families are compromised. It also increases the workload of farmers, who have to till the land by hand, reducing the amount of area they can cultivate productively.

Most farmers in this region are women, as the men typically try to find work in the towns. They also are at risk of contracting the diseases themselves, which can lead to weakness, severe illness, and death if not treated in time. With treatment, both animals and humans may recover, though the livestock may not regain its original level of strength or productivity.

“It is clear from working with farmers and conducting focus-group discussions, that it is the women who are most affected by these diseases,” says Mugasa. “They feel the impact if an animal is sick or less productive. And they are the ones who stand to benefit most from methods to detect and control the diseases.”

Trypanosomiasis tends to hit isolated and remote communities with bad roads and few services. It also tends to occur in waves of unpredictable epidemics, making it difficult to maintain sustained control measures. “This is one of the most neglected diseases, among very neglected people,” says Mugasa. “By the time you see one case in the hospital, it is likely that 10 other people have died already, and it has probably saturated the animal population. Every step you take toward making life better for these groups is worth taking.”

Mugasa’s goal is to continue in the academic ranks to become a department head, principal investigator, and a person of influence, working closely with policymakers on laws regarding animal health and disease control. She wants to form a network to be called Women Researchers Against Livestock Infectious Diseases to conduct workshops, provide training, and share information.

As an AWARD Fellow, Mugasa has learned that research is only one component of her career development. “You also need interpersonal skills to get there faster and better,” she says. “I’ve mostly worked in the lab, but now that I’m going into the field I need to be assertive, understand conflict resolution, and develop other management skills.” She highly values the networks and mentoring opportunities she will have as an AWARD Fellow. “When you are walking this road, it is very important to have someone to ask the way and give you a sense of belonging; someone who wants to make sure you reach your destination.” As for the program’s leadership development training, she has this to say: “I have always wanted to be a leader and have been told I could be a good one, but I didn’t even know how to start. Now I know AWARD is the place to begin.”

Mugasa is one of a growing number of African women agricultural scientists who have won an AWARD Fellowship. 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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