



2013 AWARD Fellow
Jane Ambuko

Position	Lecturer
Institution	Faculty of Agriculture, University of Nairobi
Country	Kenya
PhD	Agricultural Sciences, Tsukuba University, Japan, 2008
Mentor	Dr. Lusike Wasilwa, Assistant Director Kenya Agricultural Research Institute (KARI)

Research area: Postharvest science and technology of perishable commodities to minimize losses.

Jane Ambuko has always loved and excelled in the sciences. Her mother, busy raising nine children while her husband worked away from home with Kenya Railways, entrusted her with the little shop she ran in the village, recognizing her daughter's excellent math skills. Always first in her class, Ambuko sailed through her primary and secondary school education, but then suffered kidney failure.

"This was the lowest moment of my life," she recalls. "I had just passed my high school examinations and set a record as the first girl to go to university." Her father persuaded her to enroll in undergraduate studies while undergoing regular dialysis, which drained her of the energy she needed to attend scheduled classes.

At university, agriculture was not Ambuko's first choice, but the then faculty dean, Professor Daniel Mukunya, inspired her. He also played a crucial role fundraising for her kidney transplant, negotiating with the University of Nairobi medical team to perform the operation for free. After more than two years of dialysis, Ambuko underwent a successful transplant in 1993, thanks to her sister donating a kidney. "I witnessed several kidney patients die while I was on dialysis and I knew that it was not a matter of if, but when, my day would come," says Ambuko. "The transplant was transformational; it renewed my will to live and to make a difference. Since then, I have lived a normal life, enjoying it to the fullest, one day at a time."

After graduating at the top of her class, Ambuko won a scholarship for master's studies at the University of Nairobi. While writing her thesis on the effect of growth hormones on the shelf life of French beans, she worked as a part-time program officer for the Kenyan Professional Association of Women in Agriculture and Environment (KEPAWAE), following a one-year stint as an extension officer in Thika.

"During my research, I noticed that when bananas are kept in the fridge, the peel darkens. This led me to choose chilling injury as a topic for a term paper in a postharvest physiology course in the MSc horticulture program," Ambuko recalls. She went on to write a concept note on measures to address chilling injury in bananas, which won her a prestigious scholarship to study at Tsukuba University in Japan. For her PhD research, she studied the antioxidant system triggered by high-temperature preconditioning of bananas using hot water and air, as an adaptation mechanism to secondary stress under chilling conditions.

With a small grant from the Kenyan government, Ambuko tested 1-methylcyclopropene (1-MCP), blocking ethylene action in harvested fruit, thereby delaying the ripening and softening of mango and passion fruit. Her research on minimizing postharvest losses took her out to meet farmers to test how the preharvest environment affects response to 1-MCP.

“Suddenly, my thinking opened beyond the lab. I observed the farmers, many of whom are women, harvesting and packing mango fruit for market,” says Ambuko. “They were mixing the ripe, unripe, and injured fruit in one heap, then stuffing them into gunnysacks that were thrown onto pickup trucks for transport to market.”

Ambuko demonstrated her own handling method to the farmers. She lined plastic crates with wet newspaper, and sorted the fruit before packing it into the crates that she stacked without damaging any fruit. Her fruit with 1-MCP treatments arrived at the laboratory undamaged, unlike the fruit that was transported in gunnysacks over bumpy roads. If farmers adopted the same approach, the top-quality fruit would fetch a higher price, which would more than pay for the crates and labor, even in one season. “Extension focuses more on production, ignoring postharvest handling of produce, which is equally crucial if the farmers are to make a profit,” says Ambuko.

Ambuko was among 50 African scientists, including five Kenyans, who participated in a two-year, online training of trainers in postharvest technology from the University of California Davis under the Horticulture Collaborative Research Support Program (Hort CRSP), supported by the United States Agency for International Development. She recently submitted a proposal to Hort CRSP (Trellis fund) on postharvest handling and technologies to empower local farmers, in collaboration with an American agricultural university student. If funded, the project will involve capacity building for smallholder farmers on better postharvest handling practices and applicable postharvest technologies to minimize postharvest losses.

Ambuko is proud to have won an AWARD Fellowship after three unsuccessful attempts. Through AWARD, she would like to learn more about gender-responsive agriculture, including the collection and evaluation of gender-disaggregated data, as she has experienced the challenge of getting women and youth to talk during household questionnaires. She also wants to improve her writing skills further so she can compete for larger grants and publish in high-impact journals, and to network more, especially internationally. Above all, she expects the fellowship to help build her self-confidence and leadership skills. Ambuko enjoys seeing others grow and looks forward to mentoring a younger woman scientist herself as part of the AWARD program. “I have proudly watched a student, whom I mentored informally, now pursue her PhD,” she says.

Ambuko 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.

AWARD is generously supported by the Bill & Melinda Gates Foundation, the United States Agency for International Development, the Alliance for a Green Revolution in Africa, and Agropolis Fondation. For more information, visit www.awardfellowships.org