



2013 AWARD Fellow  
**Margaret Owusu**

<b>Position</b>	Research Scientist, Acting Unit Head Food Chemistry Industrial Services
<b>Institution</b>	Council for Scientific and Industrial Research (CSIR) Food Research Institute
<b>Country</b>	Ghana
<b>PhD</b>	Food Science, University of Copenhagen, 2010
<b>Mentor</b>	Dr. Wisdom Amoa-Awua, Chief Research Scientist CSIR-Food Research Institute/University of Ghana

*Research area: Value addition and improved processing of locally produced cocoa and maize for quality final products and a bigger market.*

Margaret Owusu has the enviable task of researching cocoa and chocolate, as well as yams and maize. She grew up near Accra, where her parents ensured that their six children had an excellent education. A good student throughout her youth, she loved the sciences and knew she would stay in that field, despite being interested in a wide range of subjects, including French and Geography. Her first and second university degrees were in Botany, with a major in Microbiology. Later, she completed a PhD in Food Science (Quality and Technology) at the University of Copenhagen.

In her current role at CSIR, Owusu is committed to doing what she can to make Ghanaian crops more appealing to smallholder farmers in order to increase their incomes. She is convinced that value addition to cocoa and cocoa products will ensure a bigger market, both locally and internationally. "Ghana is the second-largest producer of the world's cocoa, contributing more than 20 percent, but only a small fraction is exported in the processed form," she says. "If only we could process more of our cocoa—especially into good-quality chocolate for export, the country would benefit. And good-quality chocolate must begin with good primary processing of the raw material—the cocoa. Bad fermentation creates bad chocolate."

Owusu has investigated different methods of cocoa fermentation, including the traditional "heap" method whereby the cocoa is dumped in a pile to ferment. "A better approach is to spread the cocoa out on wooden trays," she explains. "This results in more even fermentation, and therefore better tasting chocolate. Recently, a local chocolate company became the only company in the world to produce chocolate from cocoa fermented using this technique, and they are now promoting the wooden trays to the cocoa farmers."

Owusu says she wants to see cocoa farmers, and especially rural women, become involved in the processing of cocoa beans into semi-finished and finished products, such as cocoa butter. "This would improve the livelihoods of rural cocoa farmers and their families," she asserts.

She is also part of a team studying yams and producing yam flour fortified with cowpeas and soya beans that can be used for baking or as a breakfast food. They are also working on yam chips and pre-cooked

vacuum-packed yams. “We were seeing a lot of postharvest loss, so we are trying to diversify the use of yams,” she says.

Another product Owusu is working on is *kenkey*. A popular street food in Ghana, *kenkey* is made with maize and served as a fermented dumpling. To prepare *kenkey*, the corn is steeped in water and ground into flour, which is then mixed with water, followed by fermentation for a few days into maize dough. The final product is served with a sauce, or any meat or fish dish. “We are re-engineering the traditional format to make *kenkey* more acceptable to more consumers,” she explains. “We are also improving the fermentation, the packaging, and even the shape of it, so it will be more attractive to a wider range of consumers.”

Owusu and her research team are conducting consumer taste tests to compare the new version with the traditional. “We have already collected data on the chemical and nutritional content of different *kenkey* products consumed in Ghana, and have developed a new starter-culture for fermentation of the maize dough. It is my goal that within a couple of years, my project team will have succeeded in making *kenkey* acceptable on the international market, thereby providing employment to all stakeholders along the value chain, most of whom are women farmers and small-scale producers.”

Owusu faces the challenge of being one of only two women scientists in her division at work—and the other woman is retiring later this year. She expects the AWARD Fellowship to help her develop valuable networking opportunities, and sharpen her writing skills. She also appreciates AWARD’s sponsorship to join a professional association and plans to become a member of the Institute of Food Technologists. Through AWARD courses, she hopes to hone her proposal-writing skills to enable her to secure funding to train small-scale farmers in cocoa processing.

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*Owusu 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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