

# Cutting-Edge Technologies

---

## KOKO Plus: Improving the Nutritional Status of Infants in Ghana

---

Malnutrition in infants can easily occur in areas where protein intake is dependent on grain. In Ghana, the traditional weaning food “koko,” a porridge made with fermented corn and sugar, tends to be deficient in nutritional elements necessary during the weaning period. For example, infants may not be able to take in enough of the essential amino acid lysine, and this lack can result in delayed growth. “The first thousand days from conception to a child’s second birthday are an extremely important time, and delay in growth due to malnutrition during this period is extremely difficult to regain later,” says Dr. Yasuhiko Toride, senior manager of the R&D Planning Department at Ajinomoto.

Ajinomoto launched its *umami* seasoning product made from glutamine acid in 1909, and since then it has accumulated expertise on amino acids. With regard to lysine, nutritional assessment tests that were commenced in 1995 confirmed that the substance has a positive effect on a person’s state of health. Ajinomoto has a 50-year history of producing lysine, and in recent years it has become able to do so more efficiently with a fermentation method based on biotechnology.

In 2009, as one of the initiatives commemorating its centenary, Ajinomoto launched the Ghana Nutrition Improvement Project, aiming to utilize its vast store of knowledge on food products and amino acids to help solve problems that developing countries are facing. This project, led by Dr. Toride, developed KOKO Plus, a supplement to be added while cooking koko. The main ingredient is soybeans, which are locally grown, together with an amino acid (lysine) and micronutrients (vitamins and minerals). Palm oil and sugar are added to get the taste just right.

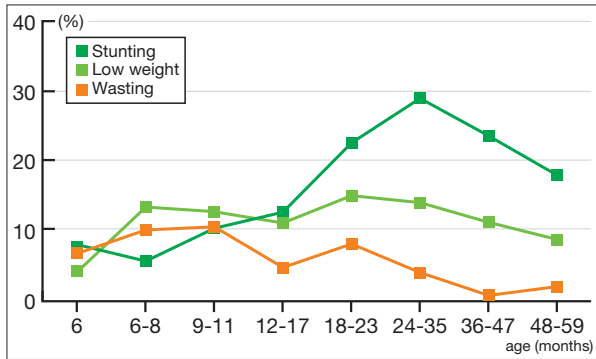
Ajinomoto has positioned this project as a social business, aiming to establish it as a sustainable business in Africa, and has been advancing it based on collaboration among the government, academia, and the private sector.

Dr. Toride explains, “Since taste is an important factor in assuring that infants will keep eating the product, we developed it in line with local needs through collaboration with the Department of Nutrition and Food Science at the University of Ghana.” Production is carried out together with a local food company. For distribution, Ajinomoto teamed up with a nongovernmental organization implementing a program supporting self-reliance for women, creating a system under which saleswomen sell the product person-to-person while promoting public awareness. Dr. Toride says this has been very effective in boosting demand. Also the government of Ghana is cooperating through the provision of education on nutrition.

Over a period of three years starting in 2013, a study was conducted on 900 infants to confirm the nutritional benefits of KOKO Plus. The results suggest that the supplement can be effective against problems such as stunting and anemia.

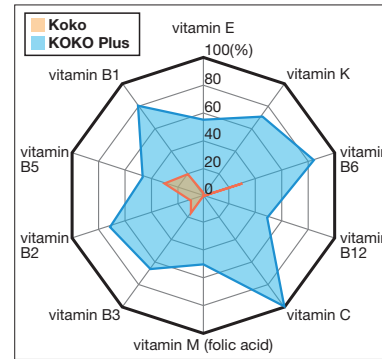
Dr. Toride shares his hopes: “I want to quickly establish this initiative on nutrition improvement as a sustainable business model and to extend it to neighboring countries. And building on our achievements with our supplement for weaning food, I hope we can undertake a project to improve nutrition for mothers as well.”

### Malnutrition in infants causes delayed growth



Malnutrition in infants being weaned at six months and up is a cause of delayed growth, with 10%–15% of those in the 6- to 11-month age group being underweight. Of toddlers in the 2- to 3-year age group, 30%–40% have stunting. Source: Ghana Health Service.

### KOKO Plus improves nutritional balance



The nutritional composition of koko and of koko supplemented with KOKO Plus, calculated as percentages of the World Health Organization's infant feeding recommendation.



1	2
3	4

1. Thorough research on local needs.
2. Working on the production process with a local company.
3. Raising awareness among mothers with infants.
4. Sales network made up of local saleswomen. Advice from mothers who have experienced the benefits of KOKO Plus is proving effective.



5. KOKO Plus package. 6. Yasuhiko Toride, senior manager of the R&D Planning Department of Ajinomoto, with a doctorate in agricultural chemistry, has led the Ghana Nutrition Improvement Project.