GHANA AND WEST AFRICA – FEASIBILITY OF IRRADIATION AS A QUARANTINE METHOD FOR EXPORT DEVELOPMENT

Michelle Marcotte*, Marcotte Consulting LLC. Consultant to US AID- West Africa Trade Hub through Abt Associates
Dr. Ramatu M. Al-Hassan, University of Ghana at Legon, Department of Agricultural Economics & Agribusiness,
Kofi Humado, USAID- West Africa Trade Hub

Ghana has a long history in food irradiation research, is a politically stable democracy, has an improving economic picture, and is currently an important exporter of fruits and vegetables (largely to the EU). For these reasons, Ghana is well positioned to be the West African leader in the use of irradiation as a quarantine treatment. New generic (non-pest and non-commodity specific) irradiation treatment regulations in the US allows expanded use of irradiation as a quarantine method.

The West Africa Trade Hub of US AID funded this project to explore the scientific, legal, commercial and institutional merits of the commercial application of irradiation as a quarantine treatment to improve exports from Ghana, and other West African countries, to the US. Scoped as a very broad feasibility study, the project was envisioned as one that would conduct an assessment of current agriculture production, storage, market logistics and the economics of processing, including costs and profitability, currently and in the future with irradiation. At the same time, the project was to assess the regulatory, scientific and other aspects leading to the hoped-for continued development of food irradiation.

In August 2005, the authors interviewed staff at the food irradiation research facility of the Ghana Atomic Energy Commission, Ghanaian fruit and vegetable exporters, Ghanaian and USDA APHIS quarantine experts and West Africa trade development agencies as part of their own investigation and economic analysis.

Key accomplishments include an improved knowledge of US quarantine regulatory requirements and the remaining hurdles to be accomplished in light of the regulatory situation in Ghana, research and training needs, discussion about refurbishing current equipment and the possible location of new irradiation equipment. Additionally, through interviews with agri-food business, US AID organizations, and locally gathered data, some analyses of current and future likely commodities for irradiation were made. Suggestions for revising the Ghana Standard for Food Irradiation were made. The project manager identified several agri-food business contacts who may be eventual clients or owners of irradiators for export. USDA Animal and Plant Health Inspection Service, the International Atomic Energy Agency and members of the radiation processing and equipment supply industry were informed about the project and its findings and asked to assist in moving Ghana and West Africa forward in food irradiation. A short summary of the basics of food irradiation, with a list of irradiation equipment suppliers is found in the Annex.

On the other hand, it was more difficult to reliably determine costs of irradiation quarantine treatment here in Ghana. Spreadsheets based on previously published work, adapted to the Ghanaian situation are included in this report. Our initial results show irradiation costs less than fumigation, based on current yam methyl bromide fumigation costs. We hope that improved information will come to light in the report review process that will allow us to update these figures.

The following commodities were considered likely candidates for irradiation quarantine treatment: yam, mango, papaya, eggplant (this includes the small white eggplant known as garden eggs), roots and tubers (sweet potato, ginger, shallots, and onions), chilli peppers (fresh and dry), herbs and spices and herbal teas. (Of these yams are already exported in large quantity to the US where they are methyl bromide treated upon arrival.) An assessment of seasonality, agriculture development and an initial economic assessment were conducted on these commodities.

The report concluded that adopting irradiation technology may be the only means of allowing exports of Ghanaian and West African fruits and vegetables to the United States. Treatments based on the other two broad spectrum pest treatments - methyl bromide or hot vapour - have not been established for the pests present in West Africa.

This report outlined the next steps towards commercial irradiation quarantine treatment. Since the report was published, the West Africa Trade Hub is assisting in the revision of Ghanaian food irradiation standards, conducted an engineering assessment of the feasibility of upgrading Ghana's current food irradiation facility versus the costs of building a new facility. US AID also funded a further economic and trade cost analysis for some Ghanaian fruits and vegetables for shipment to the US.

The authors hope that, with the information presented in these reports, funding sources will be located for the irradiation equipment and Ghana can begin to improve its export of fruits and vegetables to the United States.

Acknowledgements:

The authors appreciated excellent collaboration from other US AID programs, the food irradiation research team at the Ghana Atomic Energy Commission and USDA APHIS, particularly Dr. Shawn Robertson, on loan to US AID from USDA APHIS, whose pest risk analysis set the science base for the project.

The US AID feasibility report is available in PDF from Michelle Marcotte at marcotteconsulting@comcast.net