

Improving Industry Competitiveness

Radiation Processing Through Gamma and Electron Beam Irradiation

Philippine Nuclear Research Institute's Cobalt-60 Multipurpose Irradiation Facility has demonstrated many of the applications of radiation processing using gamma-rays and has been regularly serving clients from the food, medical products, cosmetics, packaging and pharmaceutical industries.

The facility irradiates various products such as spices and dehydrated vegetables, fresh onions, garlic, frozen fruits and cosmetic raw materials for various purposes such as sprout inhibition, pasteurization, delaying fruit ripening and microbial decontamination.

Its applications in the medical field range from sterilizing medical pharmaceuticals and "high-purity" equipment such as scalpels and syringes to reinforcing specialized membranes with electronic and biological sensors without damaging sensitive components.

The newly established PNRI electron beam facility will open more applications such as improving the quality of automobile parts, plastics, fibers, semiconductors and production of nanomaterials, among others.

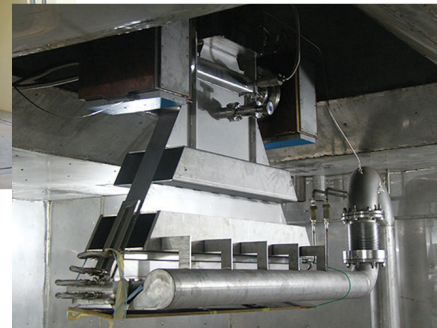
The E-Beam Facility has received funding from the International Atomic Energy Agency (IAEA), the Philippine government, including the Department of Science and Technology, and the United States and Japanese governments under the Peaceful Utilization Initiative (PUI).



The irradiation room and storage transport system of the Co-60 Multipurpose Irradiation Facility



The PNRI Electron Beam Facility in its final stages of completion



Establishment of Quarantine Treatment Dose for Philippine Super Mango

Quarantine pests such as the mango pulp weevil *Sternochetus frigidus* (Fabr.) prevent Philippine mango exports from entering international markets such as the United States and other countries with strict quarantine regulations. The wasted potential aggravates the economic woes of the local mango growers and exporters who contribute a substantial share of the Philippines' total agricultural exports.

To help enhance the export competitiveness of Philippine Super Mangoes, PNRI developed a quarantine treatment using gamma irradiation against the local mango pulp weevil.

The quarantine treatment has been approved by the United States Department of Agriculture – Animal and Plant Health Inspection Service - Center for Plant Health Science and Technology, with the Final Rule already published in the United States Federal Register.

Based on PNRI's research studies, a minimum radiation dose of 165 Gy is enough to make the adult mango weevil sterile, providing sufficient quarantine security for the Manila Super Mango.

