Food Safety: An Integral

Food safety can be compromised anywhere along the way from the 'farm to the fork'.

Food safety is a necessity for everyone. The food on our table needs to be produced, processed and marketed safely to protect the consumer.

Trade liberalization and globalization have opened not only our borders; they also have increased our exposure to insect pests and food safety hazards. Annually, the number of people suffering from food poisoning in industrialized countries increases by 30%.

Foodborne illness caused by ingesting contaminated foodstuffs which carry viruses, bacteria, protozoa, parasites or fungi, usually results in nausea, vomiting, diarrhoea or fever. Symptoms range from mild to severe, and tend to affect the more vulnerable consumers such as babies, pregnant women and the elderly.

Part Of Food Security

Many of the germs that cause foodborne illness also can be transmitted in contaminated fresh water. Infection usually occurs while preparing or eating contaminated food. Because water systems often serve large numbers of people, outbreaks of disease can affect large segments of the population.

According to the World Health Organization, foodborne and waterborne diarrhoeal diseases together kill approximately 2.2 million people annually, including 1.9 million children.

Foodborne illness can also be caused by chemical hazards such as pesticides, which can lead to chronic, life-threatening symptoms or immunological disorders, as well as cancer and death.

Food safety can be compromised anywhere along the way from the 'farm to the fork': farmers use agricultural chemicals, fertilizers, pesticides and veterinary drugs; processors and retailers can adulterate, improperly prepare or store the food, or fail to adhere to the best hygienic standards before the food reaches our kitchens.

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In recent years, many countries have developed integrated and harmonized food safety and quality control guidelines in accordance with national legislation and international standards to protect the health of consumers. But food safety standards alone are not enough. Radiation technology can complement and supplement existing technologies to ensure food security, safety and quality.

For instance, nuclear techniques are used to verify food safety, by tracing food or feed products through all stages of production, processing and distribution.

Nuclear techniques are also used to prove product authenticity, to combat fraudulent practices, which are important issues for economic, religious or cultural reasons. For instance, nuclear techniques can be used to authenticate the purity and origin of specific regional specialities such as oil, wines, and other commodities.

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Increasingly, food safety is also a vital factor in ensuring food security — the quantity, access and availability of safe food. Food irradiation can cut post-harvest food losses caused by insects, bacteria or mould by 25% to 40%.

In the irradiation process, food is exposed to electron beams, gamma rays or X-rays to destroy microorganisms and control spoilage. Food irradiation has several advantages over heat or chemical treatments, refrigeration or freezing since it does not significantly raise food temperatures so the food does not "cook".

The process does not affect the taste, smell or texture of the food, nor does it deposit any potentially harmful chemical residues. Since the radiation can pass through packaging, packed foods can be treated, protecting them from any subsequent microbial contamination or pest reinfestation.

The FAO/IAEA Joint Division provides technical assistance to Member States who wish to adopt irradiation technology to support their international trade in food commodities and to help ensure consumer safety.

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