IRRADIATION AS A PHYTOSANITARY TREATMENT FOR FRUITS AND VEGETABLES

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Irradiation was first investigated as a quarantine treatment against fruit flies in Hawaii in 1956. The technology was realized in practice in 1986 when mangoes from Puerto Rico were irradiated and sold in Florida but this treatment was subsequently discontinued in lieu of the development of hot water immersion. In 1995, a new ear in the use of irradiation as a quarantine treatment began when limited shipments of tropical fruits were shipped from Hawaii to the Chicago area for irradiation on the mainland and distribution to retail outlets in the U.S. Subsequently, importation of fruits irradiated in Hawaii was begun on a commercial basis. Although there is some irradiation of interstate shipments of produce routinely conducted in Florida and California, these two examples represent the only commercial use of irradiation as a quarantine treatment for imports.

Irradiation of imported fruits and vegetables as a phytosanitary treatment was approved by APHIS in October 2002. The Final Rule prescribes doses between 150 and 300 Gy for eleven species of fruit flies and one species of weevil. Since that time, APHIS has issued an interim rule for a dose of 400 Gy for two additional species of weevil and one species of beetle on Sweetpotatoes from Hawaii. In order to import irradiated fruits and vegetables into the U.S., the final rule sets forth specific provisions with which the importing country must comply. These provisions include the following:

- Approved doses
- Location of facilities
- Compliance agreement (inside/outside U.S.)
- Certification of facilities
- Monitoring and interagency agreements
- Packaging
- Dosimetry systems
- Records
- Request for certification and inspection of facility
- Denial and withdrawal of certification

In an effort to further extend the list of approved commodities and target pests, APHIS-PPQ is considering the generic dose concept. A generic dose is one that provides quarantine security for a wide range of pests with minimal adverse effects for a broad range of commodities. In 1991, the International Consultative Group on Food Irradiation (ICGFI) recommended a generic dose of 150 Gy for tephritid fruit flies and 300 Gy for other insects. Presently, APHIS is considering establishing generic doses for all tephritid fruit flies and seven other arthropod pests.

Irradiation facilities designed to irradiate fruits and vegetables for phytosanitary security are springing up around the world. Following the requisite certification of these facilities and the establishment of the required reciprocal compliance agreements between trading partners, irradiated fruits and vegetables should become commonplace in retail outlets across the country.