Quantitative risk assessment of radiocaesium in Japanese foods

Background

This assessment was carried out in 2021 by the Food Standards Agency as part of the evidence base to inform decisions on import controls for Japanese food following the Fukushima nuclear accident, which occurred in 2011. The risk assessment has been published for information purposes only.

The risk assessment estimates the radiological risk to human health from consumption of foods and beverages imported from Japan. Other considerations are out of the scope of this assessment.

This assessment was produced by a team of FSA radiological risk assessors with guidance from the UK Health Security Agency (UKHSA). Independent peer review was provided by the Committee on Medical Aspects of Medical Aspects of Radiation in the Environment (COMARE), a Department of Health and Social Care (DHSC) expert committee which provides independent advice to all government departments and agencies.

Approach

A quantitative risk assessment was developed based on the radiocaesium monitoring data published by the Japanese authorities. This was used to estimate the risk to the UK population from consumption of imported Japanese foods if the remaining 100 Bq/kg import restriction on some foods were to be removed.

The harm from consumed radioactivity is estimated in terms of the dose, measured in millisieverts (mSv). The dose is a combination of the amount of radioactivity in a person's diet (measured in becquerels per year), and a factor which depends on the radionuclide present (for example caesium-137) and the age of the person. A higher dose represents an increased lifetime risk of cancer.

Within the risk assessment, the combined the radiocaesium radioactivity levels was estimated on an annual basis in various food groups with realistic and reasonable estimates of UK consumption and import rates to calculate the highest probable doses.

Conclusion

The conclusion of this risk assessment is that the removal of the 100 Bq/kg maximum level on radiocaesium for imported Japanese food would result in a negligible increase in dose and any associated risk to UK consumers.

The International Commission on Radiological Protection (ICRP) recommends that members of the public should receive no more than the lower end of 1 to 20 mSv per year in an existing exposure situation. The FSA's risk assessment estimates the dose to UK consumers would be no more than 0.016 mSv per year as a result of consuming food from Japan which is less than 2% of the lower end of this range.

For comparison, the average radiation dose to members of the public in the UK is 2.7mSv from all natural and artificial sources, according to UKHSA Radiation and You.

Report

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