



Australian Government
Department of Agriculture,
Fisheries and Forestry

Irradiation insights

Biosecurity benefits of irradiating plant produce



About irradiation

Global trade of fresh fruit and vegetables is increasing. But for trade to occur, produce may need to be treated for pests, such as fruit fly, before being exported. Untreated produce carries the risk of spreading pests that can harm crops and environments.

Traditional pest treatments rely on chemicals, gases or different temperatures. A combination of treatments may be needed to effectively treat produce, depending on the type of pests being treated and the biosecurity requirements of the importing region. An alternative treatment is irradiation, technically known as phytosanitary irradiation. The treatment works by making insects sterile, preventing their spread.

Irradiation treatment is performed at offsite facilities after produce has been harvested. Irradiation is a wave of energy that passes through the packaging and produce, much like an X-ray or a microwave, without affecting the quality of the produce.

Biosecurity benefits

Irradiation is used in more than 60 countries, and a single treatment is effective against a broad range of pests. Irradiation technology has been developed over decades of research and refinement. It is a fast and safe way to treat produce and help protect biosecurity, making it a preferred treatment in many countries, including Australia and the United States of America.

A scientifically proven approach

There are 3 types of irradiation commonly used for biosecurity treatments: Gamma, X-ray and e-Beam.

Irradiation is the only biosecurity treatment that is effective against pests that are both on and inside the produce, as well as pests that are on the packaging and pallet, regardless of the packaging materials.

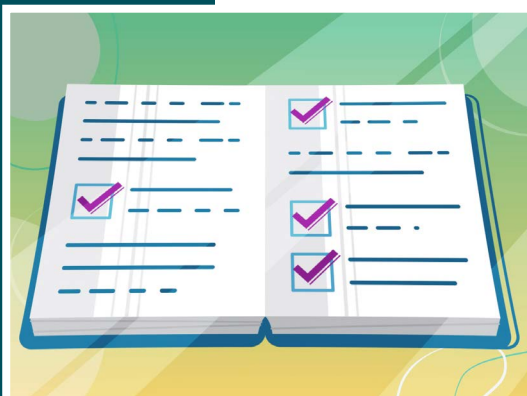
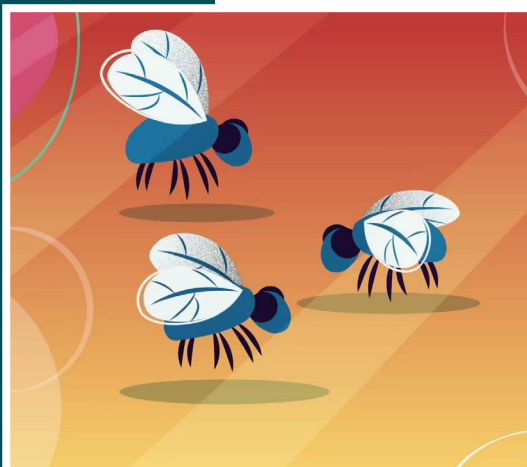
Internationally accepted and regulated

International guidelines and treatment standards are in place to make sure everyone uses irradiation correctly. The guidelines, along with the increased uptake of irradiation around the world, is helping to build strong trade between countries, providing economic and food security benefits for all.

The Guidelines for the use of irradiation as a phytosanitary measure are regularly reviewed and updated to ensure that phytosanitary irradiation remains a safe and reliable treatment. The latest guidelines can be downloaded from the International Plant Protection Convention website at www.ippc.int/en/core-activities/standards-setting/ispms

Verified and quality assured from start to finish

After the irradiation treatment, consignments are wrapped in pest-proof packaging to stop any untreated pests from entering. Packages are labelled with the details of the treatment to tell biosecurity inspectors that the consignment has been treated in line with the importing country's biosecurity requirements.

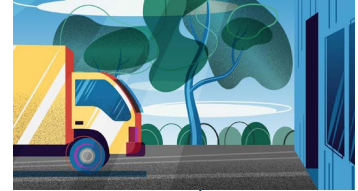


How it works

Irradiation technology has been researched and refined for decades to ensure that irradiation doses effectively treat pests without affecting the quality and safety of produce. There are 3 types of irradiation commonly used for biosecurity treatments: Gamma, X-ray and e-Beam. Produce is simply packaged at the farm and sent to an irradiation facility.

1

Facilities have separate entry and exit points to keep treated produce safe from any pests arriving in an untreated delivery.



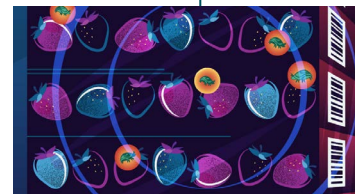
2

Packages are registered to record their treatment details and track them throughout the process.



3

A wave of energy passes through the pallet, treating any pests that may be on or inside the produce and its packaging. The amount of irradiation that is given is based on the type and amount of produce, and the pest being treated. It also considers any other treatments that have been done or will be done, such as more irradiation at the destination.



4

When all the energy has left the package, the treatment is complete. The package is wrapped in a pest-proof barrier to reduce the risk of untreated pests entering the package after treatment.



5

A verification certificate is included to tell biosecurity inspectors in the importing country that the produce has been treated in line with their requirements.



6

The consignment is loaded for distribution in a secure environment to avoid any pests entering from the outside environment.



How to start using irradiation

For more information on the benefits of using irradiation for plant produce – including videos and information sheets – see the Australian Government’s plant protection website at agriculture.gov.au/plant-protection

To start using irradiation, contact your national plant protection organisation.

