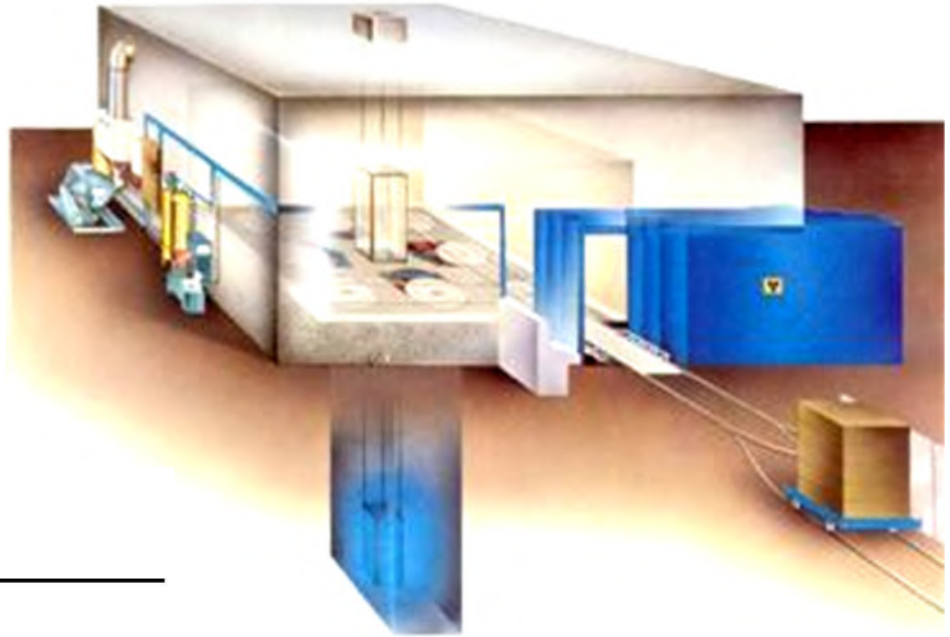
FOOD IRRADIATION TECHNOLOGY : PHYTSANITARY IRRADIATION



DOA and Industry Pre-Season Coordinating Meeting for Litchi Exports to the USA

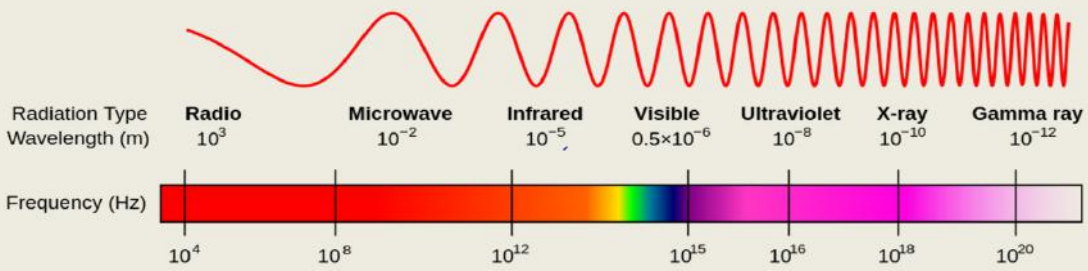
agriculture

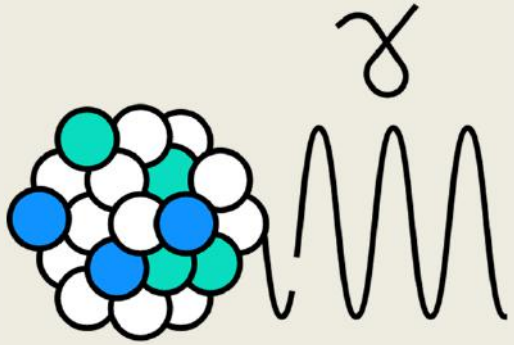
Department:
Agriculture
REPUBLIC OF SOUTH AFRICA

Cherin Balt

HEPRO

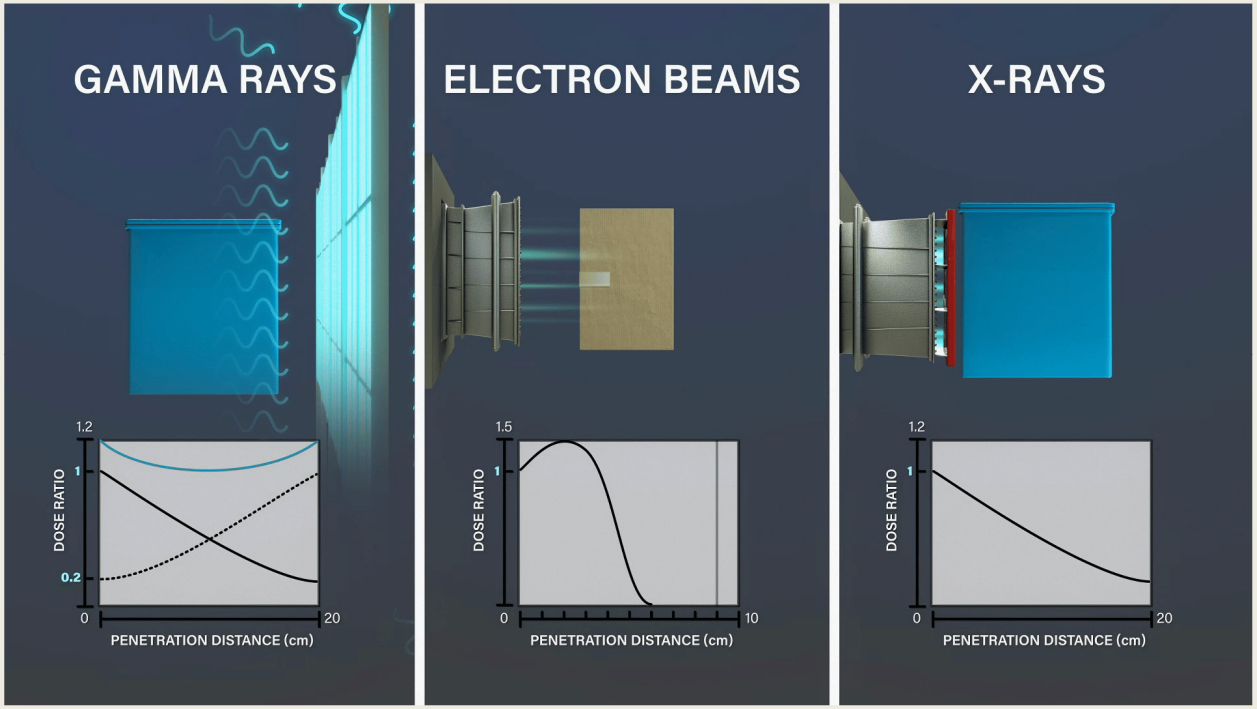
WHAT IS IRRADIATION?

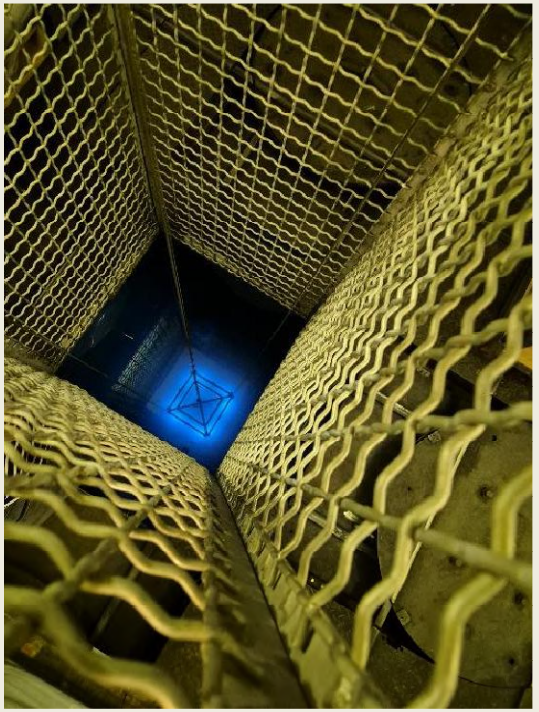




Use of high energy from a source to splice DNA to make reproduction impossible

IRRADIATION TECHNOLOGIES





WHY IRRADIATE FRUIT?

SAFETY

- Clean
- No chemical residue
- Quality intact

TEMPERATURE

Fruit is treated at temperatures more suited to the type and varieties

Some fruit does not respond well to Cold Sterilisation at sub-zero temperatures for periods of 16-24 days depending on the destination

TRANSPORT

Fruit can be airfreighted and reach the destination sooner than seafreight

Fruit can be transported for shorter periods to their destinations

TRADE

Strict phytosanitary requirements facilitate trade

IAEA Sterile Insect Technique (SIT) Programme

IRRADIATION OF FRUIT GLOBALLY

USA, MEXICO, VIETNAM & AUSTRALIA

Biggest fruit irradiators in the world

MEXICO

Treats 13 Mexican fruits, including mangoes, guavas, figs, pomegranates, limes, and grapefruit, which must be irradiated before being exported to the U.S.

Mexico has developed advanced irradiation facilities, including the first phytosanitary irradiation facility in Latin America using e-beam technology, to meet the growing demand for irradiated produce.

SOUTH AFRICA

1 facility offering limited service to the Table Grape Industry for airfreight export to Vietnam

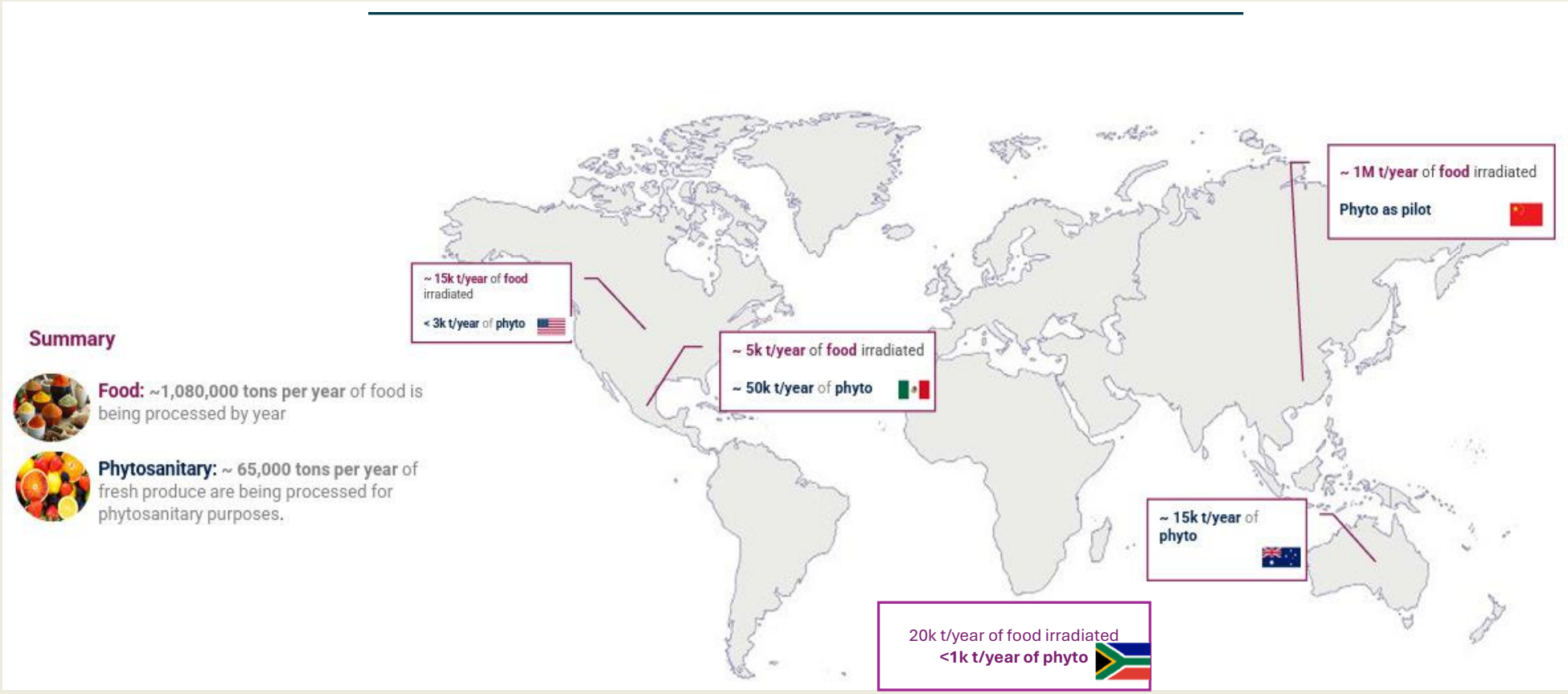
INDONESIA, THAILAND & INDIA

Irradiate fruit and import irradiated fruit

AUSTRALIA

2 facilities working 52 weeks treating >80 crops and are used by all Australian retail networks to 6 Export markets and 54 protocols

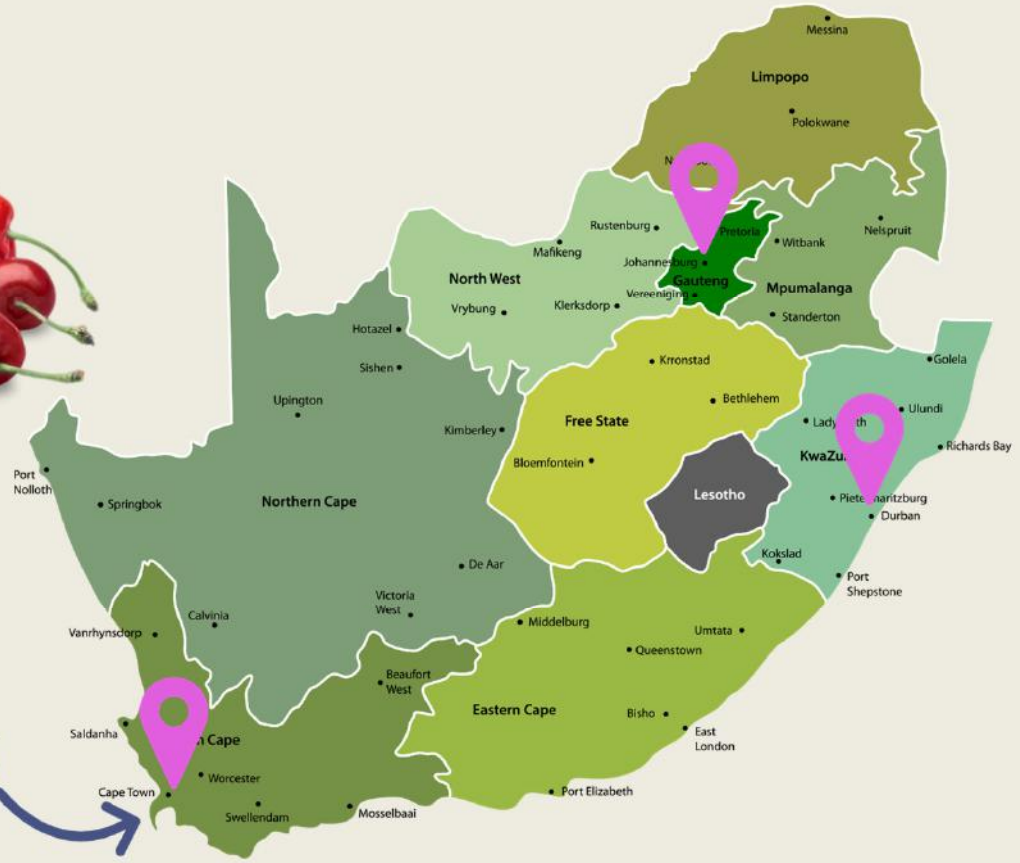
IRRADIATION OF FRUIT GLOBALLY



IRRADIATORS IN RSA :

FRUIT TESTED AT HEPRO

HEPRO



IRRADIATION OF FRUIT GLOBALLY

PHYTOSANITARY IRRADIATION OF FRUIT IN RSA

Are protocols the same world over?

- All countries require a minimum dose of 400Gy for certain species ad 150Gy for others
- 1000Gy is the upper limit
- In countries like the USA, insect exclusion packaging is required

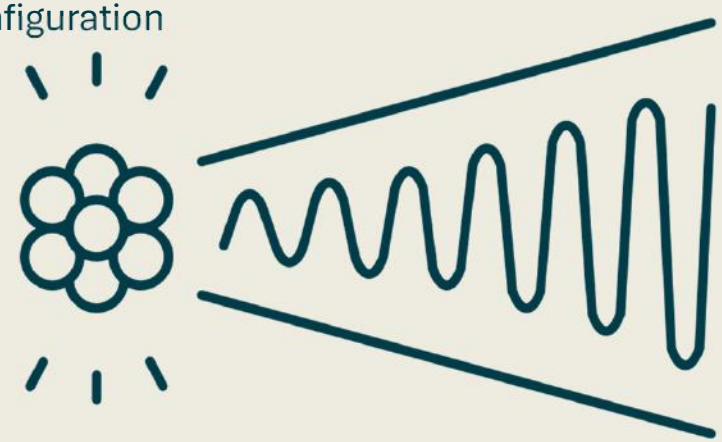
Currently South Africa is the only African country which practices phytosanitary irradiation.

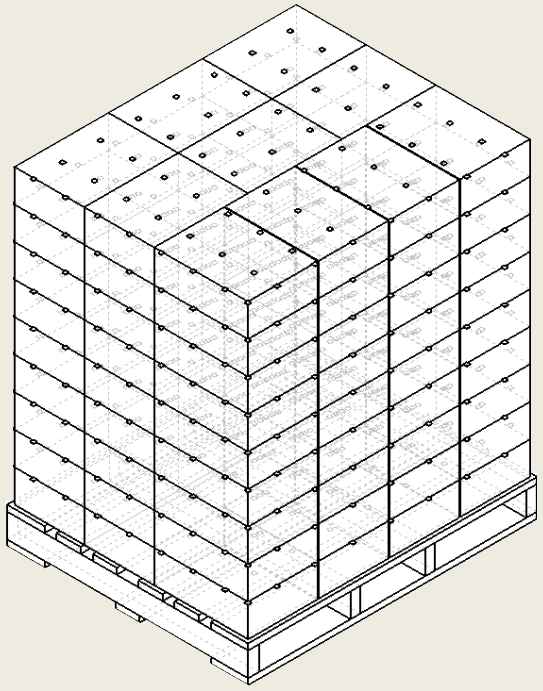
Countries such as Ghana, Botswana, Tanzania, Kenya are investigating using the technology for a wide array of products including fruit, vegetables, cut flowers, spices etc

CERTIFICATION : DOSEMAPPING

DOSEMAPPING OBJECTIVES:

- Maximum, Minimum and Reference Dose Positions- this is to ensure that the most shielded positions receive the dose required to eliminate potential pests
- Dose Uniformity Ratio (DUR)
- Optimum Configuration





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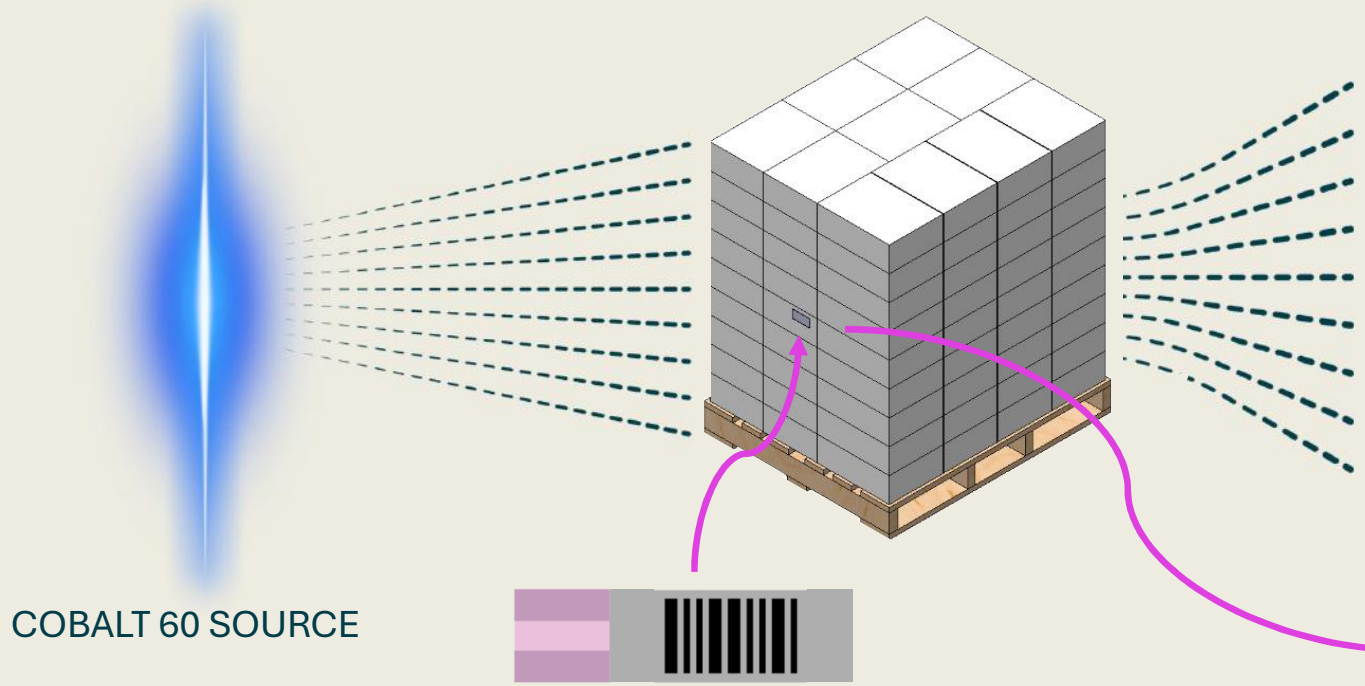
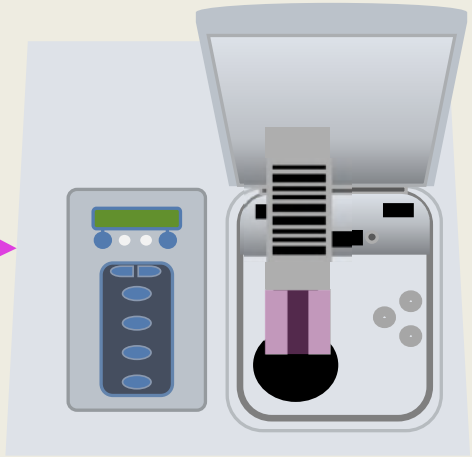


COBALT 60 SOURCE

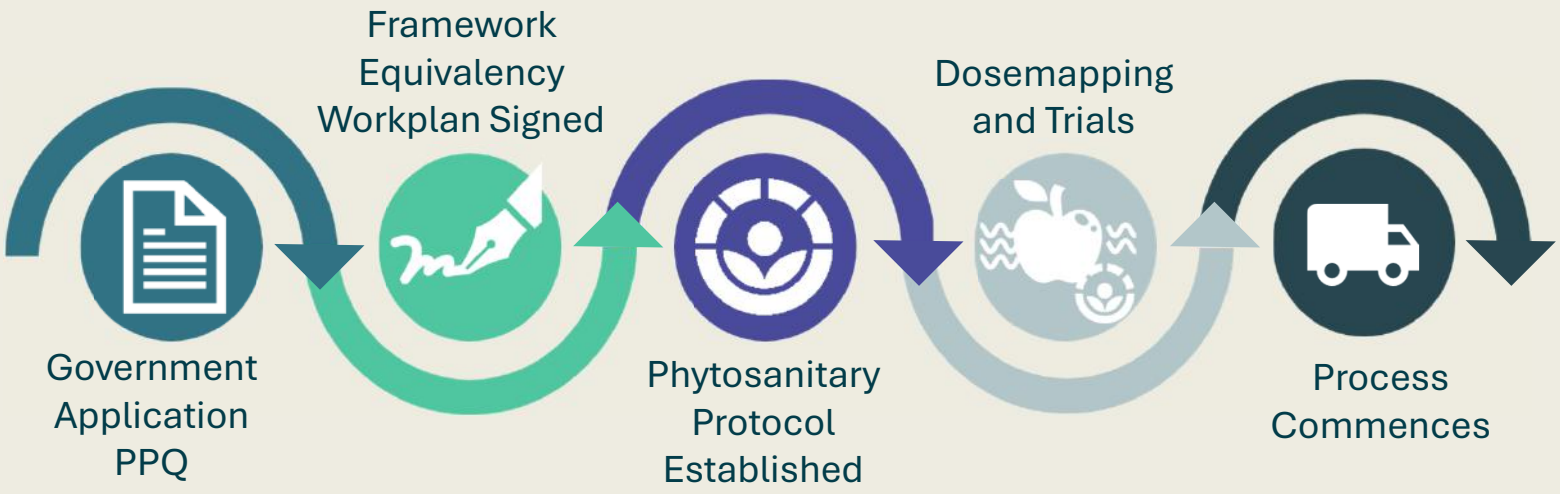
REFERENCE DOSIMETER

A device used to measure absorbed dose of ionising radiation

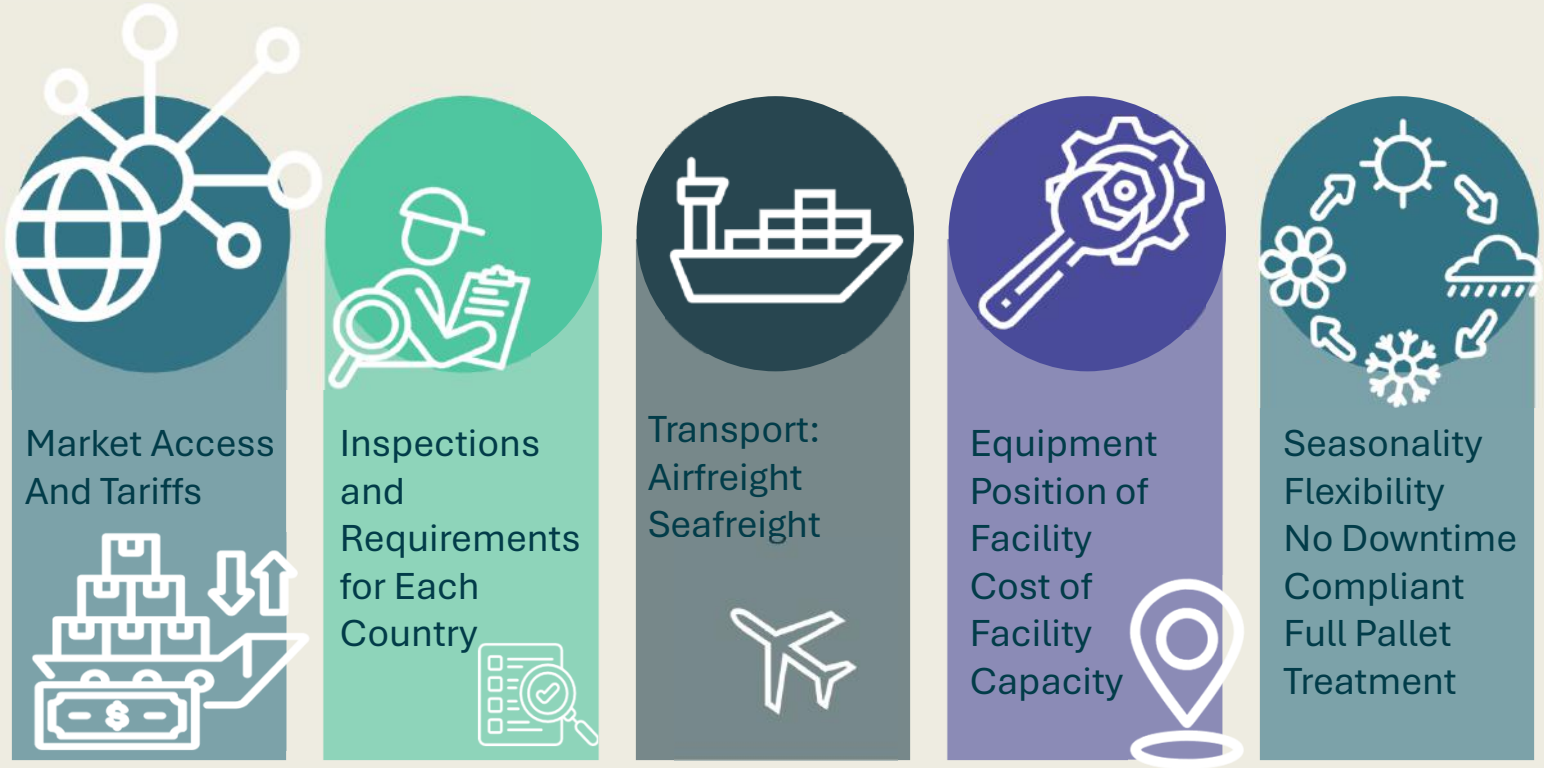


SPECTROPHOTOMETER

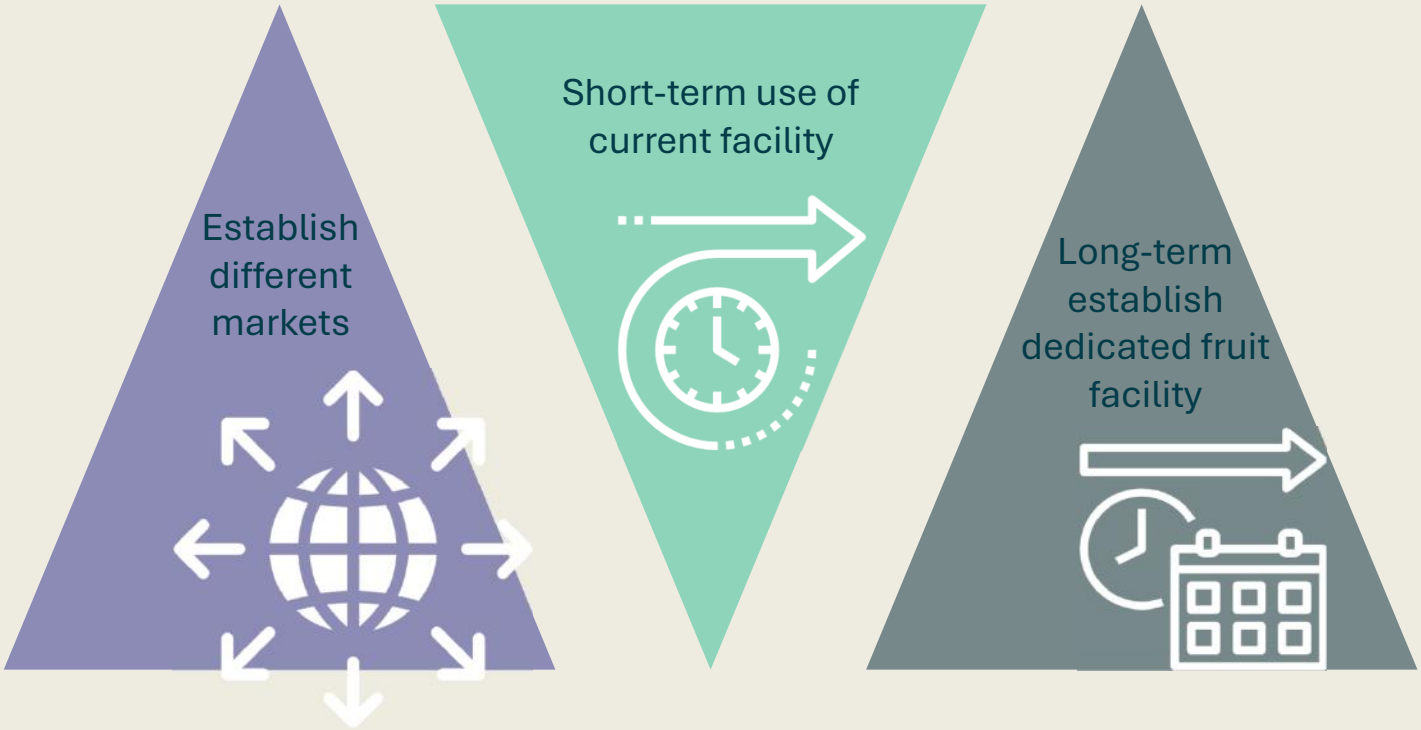
REQUIREMENTS

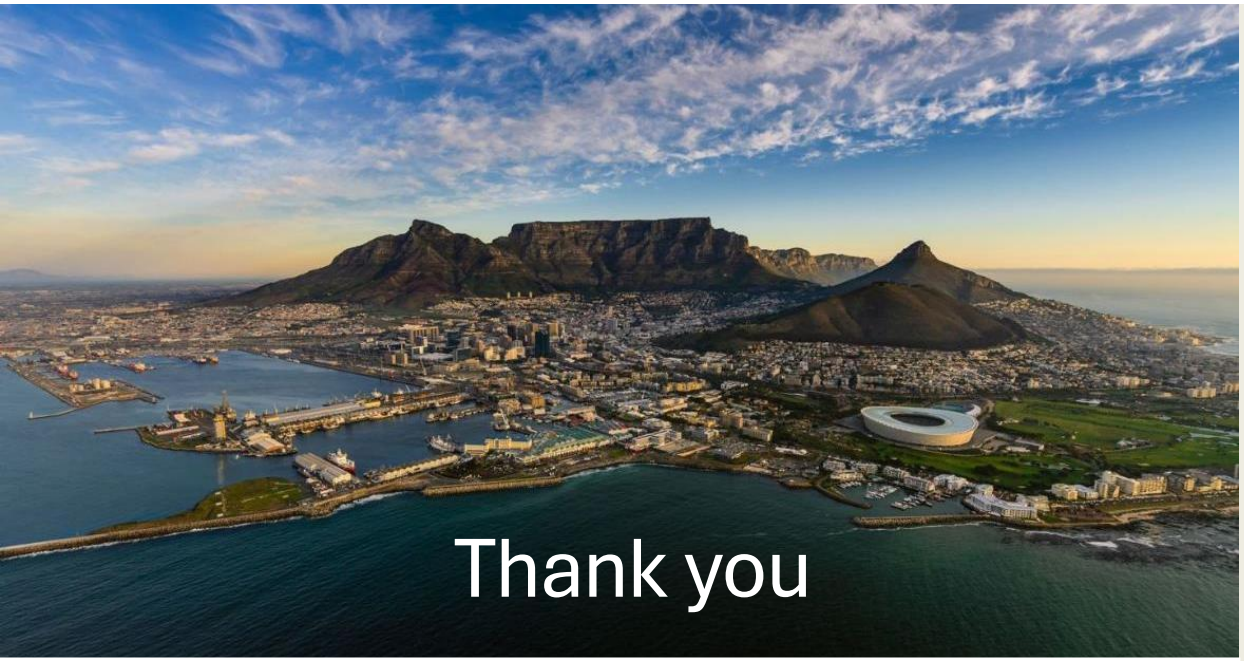


CHALLENGES


Market Access
And Tariffs
Inspections
and
Requirements
for Each
Country
Transport:
Airfreight
Seafreight
Equipment
Position of
Facility
Cost of
Facility
Capacity
Seasonality
Flexibility
No Downtime
Compliant
Full Pallet
Treatment

CONCLUSION


Establish different markets
Short-term use of current facility
Long-term establish dedicated fruit facility



Thank you

Presented By: Cherin Balt

HEPRO

6 Ferrule Avenue,
Montague Gardens,
Cape Town

Please direct any queries to
cherin@hepro.co.za
info@hepro.co.za

Cell : 082 745 9576

Tel : 021 555 8880