

Ionization in Agriculture

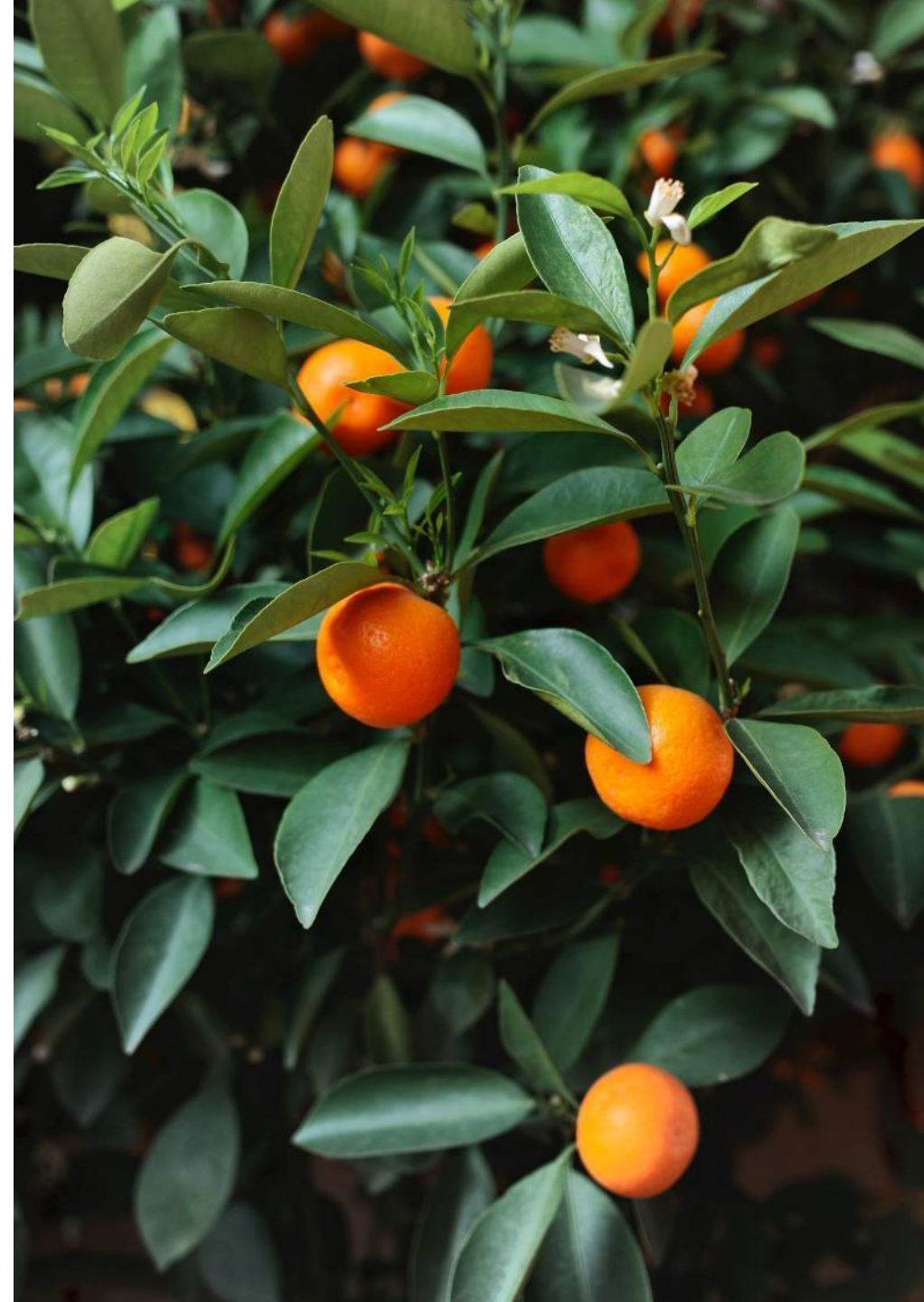
Sterile Insect Technique



River
Bioscience



Vienna, Austria – May 2023



XSIT Facts and Figures

Started in 2007

Over 180 people employed

Release stretches over = 1 800km

9 months of release from September to May

Adapted crop or area specific programmes

Capacity:

Produce | 60 000 000 moths per week

Service | 22 000 hectares per week (Rate per ha dependent)

Current Output:

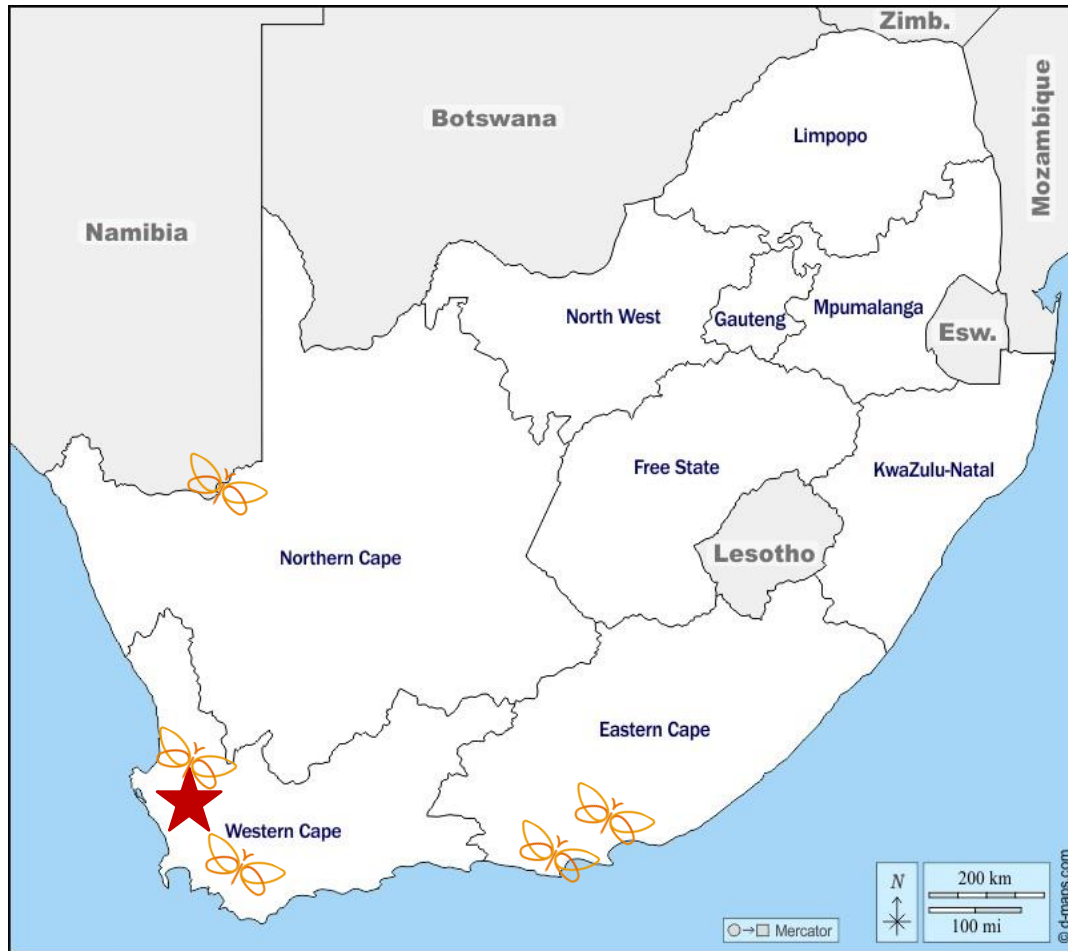
Produce | 50 000 000 moths per week

Service | 16 500 hectares per week



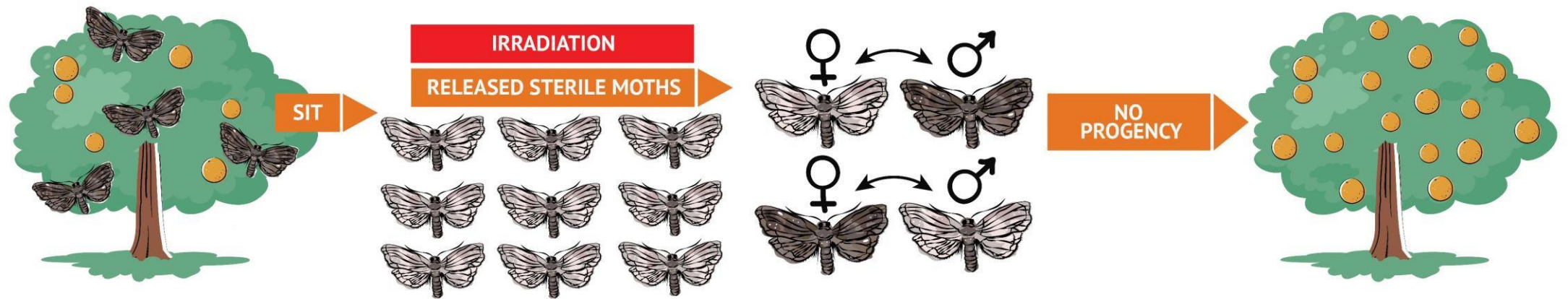
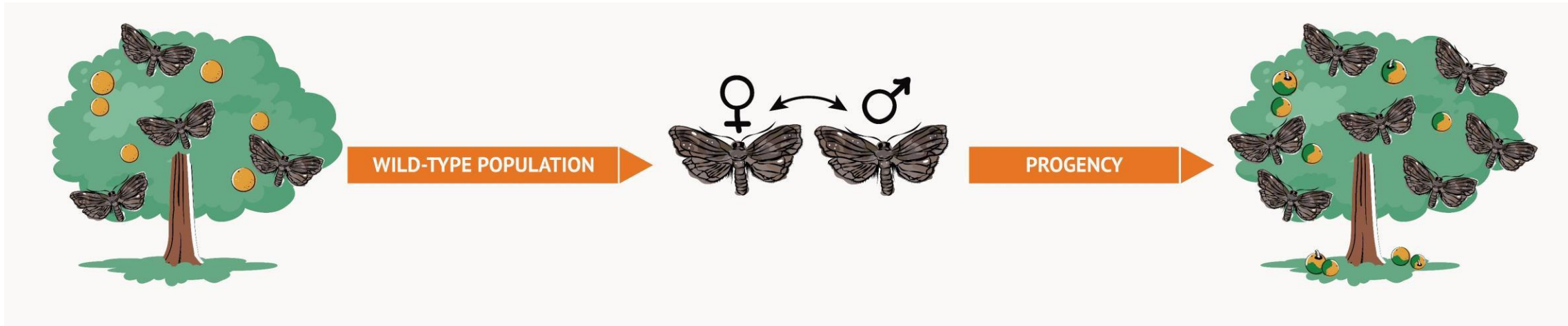
Background

XSIT Facility location ★ & Releases 🦋



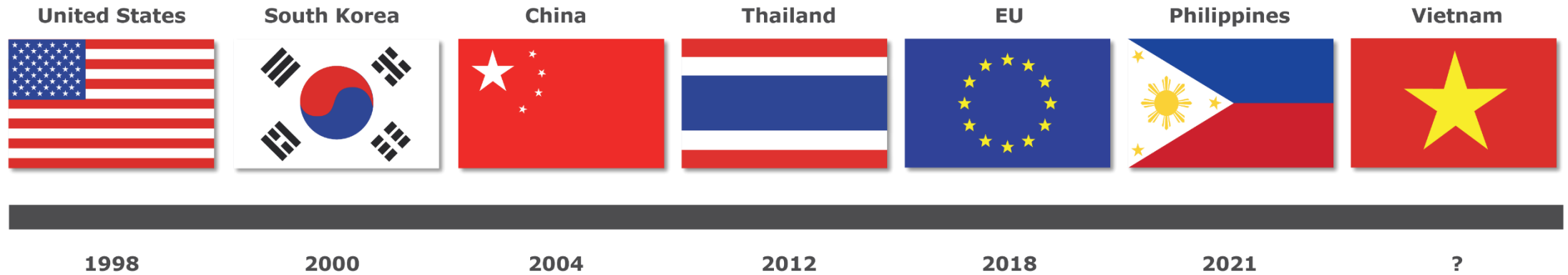
Background

Moths are irradiated at 180 GY - both Males & Females Released

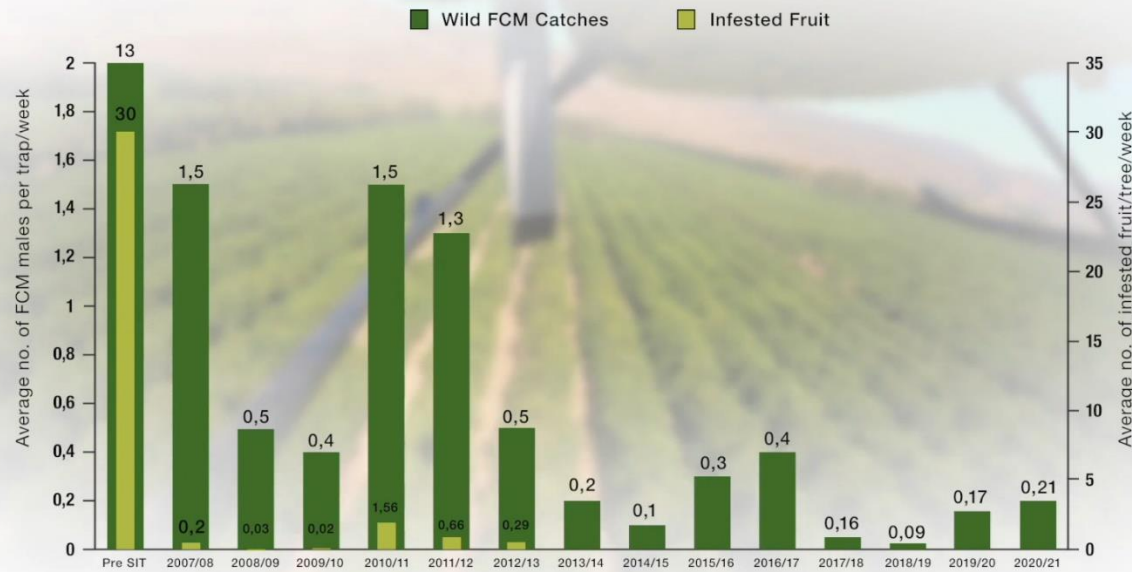


Why SIT - FCM AND MARKET ACCESS

Phytosanitary Status



SIT and contributions to food safety



Internal Elements of Sustainability

Diet:

- Has to be 100% consistent
- Two extruded recipes available

Space and Collection Methods:

- Air flow and air quality critical to success
- Additional Building rented in 2017
- Cyclone collection being trialed on commercial scale

Release Mechanism:

- Gyro Copters proved to be unsafe
- R22 Helicopter & Quad bikes used currently
- Point release being tested on wide scale

Sterilization Methodology:

- Cobalt 60 used since beginning but has drawbacks
- X-Ray being researched and Trialed



FCM SIT Radiation Needs

- Irradiate to 180 GY
- Irradiate up to 10 million moths a day
- Keep moths cool and healthy
- Daily guaranteed service availability for 9 months



Cobalt 60 Source Challenges

- Acquisition Process
- On Site Risk
- Lack of Flexibility
- Disposal

- Cost

Acquisition:	\$475 000
Source and Transport	\$350 000
Project Management, Security & Install	\$125 000
Buildings & Bunker:	\$150 000
Security System:	\$ 60 000
Total Installation	<u>\$685 000</u>
Running Cost per annum:	\$ 40 200
Support Service (safety & security)	\$ 19 500
Staff	\$ 18 000
Ragtags	\$ 2 700



X-Ray Challenges

- High Cost – SIT pricing
- Low reliability with extended downtime on failure
- Availability of Spares and Support
- Volume and through-put for scalability
- Stable and Reliable Electricity Supply



Sustainability Workstreams

- Technology Support
- Research on X-Ray
- Funding Options
- Government Involvement
- IP Sharing and Training



Thank you

