



IAEA

Atoms for Peace: The First Half Century

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Eliminating fruit pests in South Africa

The challenge...

Fruit flies, codling moth and false codling moth cause significant crop losses in South Africa, and are international quarantine pests. Their presence in South Africa threatens existing markets and jeopardizes the exploitation of new markets. The potentially severe economic consequences will have far-reaching effects on the fruit industry and the country, from job security to knock-on effects on other industries. The pests also cause problems in South Africa for emerging, 'small-scale' fruit farmers trying to enter the export market, and for informal communities for which food security is a major concern. Due to its environmental and human health impacts, pesticide treatment cannot be a long term solution.

The project...

This project is located in Western Cape, South Africa. It uses the sterile insect technique to suppress fruit flies, codling moth and false codling moth, leading to area freedom of the pests, with associated international socio-economic and market benefits. Male fruit flies, codling moth and false codling moth are sterilised through Co60 irradiation and released en masse into fruit production areas, mating with fertile wild females to suppress wild populations.

The impact...

Jobs and human capacities have been created in mass-rearing, sterilising, releasing, monitoring and identifying target insects. These will increase. A variety of benefits have followed the creation of pest-free areas, including increased foreign exchange, increased job security, improved food security for informal communities, easier and less expensive fruit production by emerging farmers, and enhanced socio-economic benefits.

Quantifiable data...

- Wild fruit fly populations in fruit orchards under SIT have declined by up to 94%.
- Rejection of export table grapes due to fruit fly have been reduced by up to 50%.
- Fruit fly control costs have been reduced by up to 67%.
- Fruit-fall of citrus due to false codling moth in the SIT pilot project has been reduced by 95%.
- Excellent results with false codling moth has led to the commercialisation of SIT and the construction of a state-of-the-art rearing and irradiation facility. Area-wide sterile releases will start in 2008.
- Pesticide applications and residues on fruit have been significantly reduced in SIT areas.
- Under an integrated codling moth SIT programme in apple and pear orchards, 30% of orchards received no insecticides, fruit damage was limited to 0.025%, and the majority of orchards had no codling moth damage at all.
- Resistance to pesticides by codling moth has been reduced in SIT orchards.
- Closer links with provincial and national government have been established, and government funding for SIT has increased.

SAF/5/002: Feasibility study for the implementation of SIT against fruit fly in the Hex River Valley; 1996 - 2002, SAF/5/007: Integrating the use of SIT against a complex of pests on different fruit kinds in the Western and Northwestern Cape; 2003 to date. Size of project: US\$3 million over 10 years. Project implemented with assistance from FAO/IAEA. Extra-budgetary resources from Agricultural Research Council, Deciduous Fruit Producers' Trust, Hex Valley Research Services Trust, Western Cape Department of Agriculture, Citrus Research International, South African Apple and Pear Producers' Association.