

Expanding the sterile insect technique (SIT) in South Africa

The challenge...

The Western Cape Province of South Africa has a highly developed fruit export sector. However, it is becoming increasingly difficult to use insecticides due to pest resistance, environmental problems, legal restrictions on residues and larvae in export fruits. A pilot technical cooperation project in the Hex River Valley showed the sterile insect technique (SIT) to be effective in suppressing Mediterranean fruit fly, and resulted in lower fruit fly control costs and fruit losses, reductions in the rejection of export shipments of table grapes, and less usage of insecticide. The same approach could be used in other fruit producing areas against fruit pests such as the false codling moth, the Natal fruit fly and the codling moth.



Work carried out at the large moth mass rearing facility.

The project...

In a collaboration between the IAEA's technical cooperation programme, the Food and Agriculture Organization of the United Nations (FAO), the United States Department of Agriculture, the Agricultural Research Council and the Institute for Deciduous Fruit, Vines and Wine and the Deciduous Fruit Producers Trust in South Africa, SIT was applied, for the first time in the world, against the false codling moth, a major pest of citrus and other crops, which had become insecticide resistant.

After a successful pilot phase, this component of the project was transferred to the private sector and a large moth mass rearing facility was constructed as a result of IAEA technology transfer. Assistance was provided through 15 expert missions, 10 fellowships on insect pest control and 16 scientific visits on entomology. Most citrus for export in the Western Cape Province now benefits from area wide integrated SIT application, and expansion to other important citrus producing areas in other provinces is under way.

The impact...

The citrus export industry was saved from the devastating false codling moth and thousands of job losses were avoided in the Western Cape Province. False codling moth SIT is now on a very firm footing in South Africa and the technology is now available for other FAO and IAEA Member States. The sustainability of fruit production and exports has also improved, and fruit losses and insecticide usage in the Western Cape Province have been reduced.

Work is ongoing to assess the potential for integrating SIT against sugarcane borers on sugarcane, as well as to consolidate codling moth management in the apple and pear export industries.

The technical support provided has been highly valued by the Government and the private sector, and it continues to support the expansion of SIT to other areas. The achievements have been so convincing economically and environmentally to the private sector that three companies were established under public-private partnerships with the fruit industry. This assures sustainability of activities in the future.