IAEA Technical Cooperation Programme

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Using the sterile insect technique to improve produce for export in Latin America

The challenge…

Central American countries share agricultural systems and similar agricultural pest problems. Their proximity to the United States of America provides them with competitive commercial advantages over other countries that export tropical and subtropical fruits and vegetables. However, the export of fresh produce is limited owing to the presence of fruit flies. Quarantine restrictions mean that the insect pests, which include the Mediterranean fruit fly, Mexican fruit fly, mango fly and guava fly, have a very negative impact on local economies. Depending on farming methods, location and climate, these pests are able to ruin many crops, including orange, grapefruit, tangerine, papaya, mango, guava, apple, pear, peach, apricot, pitaya, peppers and tomato. The insect pests also damage other wild fruits which are not of commercial interest, but which represent a source of seasonal food for local people.

The project…

Through a regional technical cooperation project, the IAEA has supported a multilateral approach to facilitate the export of fresh fruit and vegetable from Central America through the creation of fruit fly low prevalence and fly-free areas. Building on previous activities that provided the foundation for the application of the sterile insect technique (SIT) to the Mediterranean fruit fly and helped to set up a national fruit fly programme in each country, the project focused on improving or fine tuning the technology to suppress, prevent or eradicate other species of fruit flies. Pilot areas were enlarged to meet the requirements of the importing countries, and training increased the number of technicians in each national programme. Technical capacity in the application of SIT to wider areas was developed. The project provided expertise and training for over 200 fellows and scientific visitors in many areas related to SIT.

Native fruit fly laying eggs in an orange.

Healthy fruit without insecticide residues.

The impact…

As a result of the project, participating countries are able to manage major pest insects more effectively. Lucrative export markets have opened up, resulting in investments of over US $2005 million in the production of fruit and vegetables. Currently, all exports of tomato and bell pepper from Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua come from the fruit fly low prevalence areas established. In addition, Belize and Guatemala export papaya from the Mediterranean fruit fly free areas to the US market with no post-harvest treatment. These major accomplishments have already created over 6500 jobs and are expected to generate over 40 000 jobs in the upcoming years in the packing, transport and related service industries.

Technical cooperation project RLA/5/057: Establishing and Maintaining Fruit Fly Free and Low Prevalence Areas in Central America, Panama and Belize, Using the Sterile Insect Technique (SIT) (ARCAL CVI)