

Promoting Good Agricultural Practices in Costa Rica

The challenge

Almost 85% of Costa Rica's vegetables, produced for both local consumption and export, are grown in the region Northeast of Cartago. Most farmers use agrochemicals and synthetic fertilizers to prevent and control diseases, insect pests and weeds, and to improve crop yields. Residues from uncontrolled agrochemical and fertilizer uses contaminate ground and surface waters, soil and the atmosphere, and have detrimental effects on the health of humans, wildlife, fish and other aquatic species and the environment. The poor water quality of the rivers in Cartago has been ascribed, inter alia, to the unsustainable farming methods used in the area.

The project

Within the framework of an IAEA technical cooperation project, scientists from the Environmental Pollution Research Centre (CICA) in Costa Rica received training in assessing and monitoring pesticide residues and contaminants in food, soil and water. In addition, a state of the art liquid chromatography–tandem mass spectrometer (LC-MS/MS) was procured for the laboratory, enabling CICA to detect and evaluate extremely small amounts of pesticide residues and other pollutants using nuclear and isotopic techniques.

Subsequent analyses carried out by CICA confirmed the presence of harmful contaminants in food, soils and waters from the rivers of Cartago. Using the information obtained through the analyses at CICA, a campaign was launched to raise awareness among farmers, community members and governmental officials about the detrimental effects of pesticides and synthetic fertilizers when used indiscriminately. As part of the campaign, farmers were introduced to good agricultural practices, or GAPs ("practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products") for sustainable agricultural production. Farmers have incorporated the use of bio-purification systems (simple low-cost constructions using local materials based on a Swedish bio-bed design) to minimise environmental contamination from pesticide use on farms.



The impact

Many farmers in the Cartago area have taken advantage of GAP training, and are applying these practices with the aim of protecting their water supply and the health of the people and the environment. On-farm bio-purification systems are also being widely used to reduce water and environmental pollution. CICA continues to train local farmers in GAPs and on the safe and correct use of agrochemicals and fertilizers to improve yields by controlling plant diseases, insect pests and weeds and providing better nutrition for their crops.

The changes in agricultural practices have already shown results. CICA has confirmed improvements in ground and river water quality in Cartago. The use of GAPs and bio-purification systems not only helps provide cleaner drinking water and a better environment for the people of Cartago and Costa Rica in general, but also provides an inexpensive technique for farmers to reduce the environmental impact of agrochemical use. The project has contributed significantly to the enhancement of food safety and security, human health and a better environment in Costa Rica.

* FAO COAG 2003, GAP paper