



Food and Agriculture
Organization of the
United Nations



AGRICULTURAL INNOVATION FOR FAMILY FARMERS



REFRAMING THE GREENHOUSE

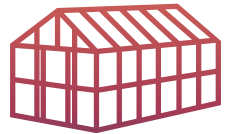
What is the innovation?

Low-cost and natural resource efficient greenhouses for high quality vegetable production.

Why is it innovative?

A simple, local solution that allows farmers to produce vegetables year-round using fewer fertilizers, pesticides, water and land.

After 10 years, the farmers upscaled their activities and markets by creating a cooperative. Farmers now have direct access to consumers and can sell their produce to supermarkets in the main cities. Collection centres and packing facilities have since been built to reduce post-harvest losses. These types of greenhouse systems have since been replicated in Honduras, Guatemala, Jamaica, Kenya and Tanzania with excellent results. In Jamaica, for example, ten farmers grouped together over a decade ago. Today, there are more than 120 farmers growing vegetables in greenhouses. In Tanzania, there are now over 40 low-cost greenhouses that have been built following the system in Central America, producing sweet pepper and tomato.



How does it work?

In 2007, a group of farmers in El Salvador invested in greenhouses using local materials. The farmers installed wooden supports, netting as walls to create a physical barrier to prevent virus-transmitting insects, and a roof to prevent high humidity and keep out bacteria and fungi. They used coconut fibre as a substrate for a soil free system to avoid roundworm and soil diseases. Finally, they installed a drip irrigation system.

Where?

The innovation is being used in El Salvador.

Who are the beneficiaries?

The beneficiaries of this innovation were farmers in El Salvador.

What are the results?

The farmers were able to grow tomatoes, bell peppers and cucumbers year round, using fewer inputs such as water, pesticides and fertilizers. The greenhouses improved the incomes of small-scale horticulture farmers, by increasing crop yields and quality. The market competitiveness of their produce was also increased due to it being guaranteed as safe due to adoption of good agricultural practices and reduced pesticides.

SDGs the innovation contributes to: SDGs 2 & 13

Looking to the future:

The greenhouses also serve as a training platform to teach schoolchildren the basics of agriculture, business, labour and where healthy, tasty vegetables and greens come from. The greenhouses used in a new project in Turkey aims to be even more environmentally friendly: with heating derived from compressed natural gas (a much greener technology with reduced carbon footprint compared to conventional greenhouses which use coal as fuel). Greenhouses can be upscaled and can be used in small scale and family farms in other countries, especially where water and land resources are limited.

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