

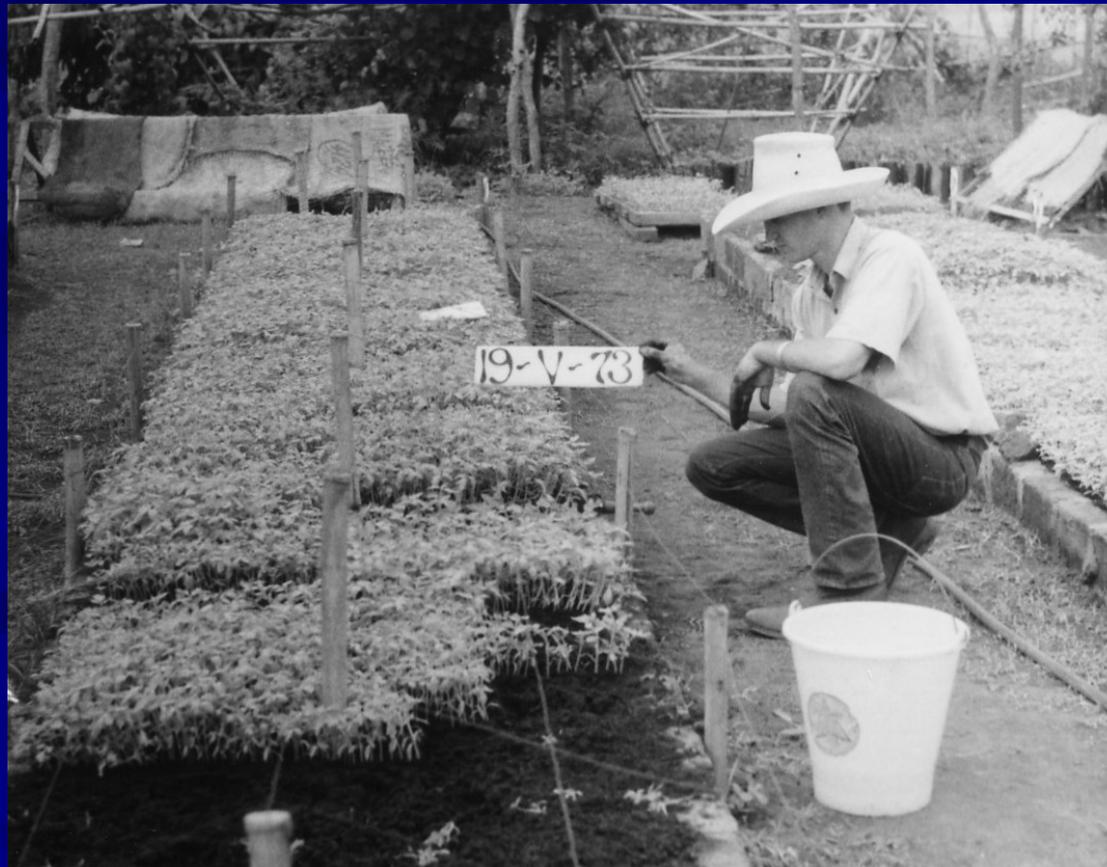
# Designing innovations

A case study from Zapotitán,  
El Salvador

initiated with CENTA in 1973

Peter Hildebrand, assigned by the University of Florida to CENTA, was creating an agricultural economics department for that agricultural research and extension organization in El Salvador

He was fortunate to have a Peace Corps Volunteer, Edwin C. (Tito) French to work with, along with three Salvadoreños



The challenge we faced, besides creating the department, was to help CENTA generate innovations to help improve the livelihoods of smallholders who were the majority of the population of the country.

Our main target area was an irrigation project that had been put mostly into sugar cane. The country wanted smallholders to produce vegetables there for San Salvador.



As in most of Central America, maize and beans were the staples of the diet, and critical for smallholders to produce.



Most smallholders produced maize on all available land. Beans were usually produced following maize, or sometimes intercropped in the drier areas.



Even to the edges of national monuments!



Unemployment and under employment were widespread.



Even though most Salvadoreños were very hard working when they could find something productive to do.



Primary roads and transportation generally were good



Many secondary and access roads also were acceptable.



Particularly in the project area.



Soils were generally of volcanic origin and were quite fertile



Pesticides and fertilizers were also widely available in local markets.



## **We knew that we had to design a system consistent with the following situation:**

- Labor was relatively abundant, but
- Bullocks were available for land preparation
- Land was scarce
- Transportation was available
- Chemical inputs were easily accessible
- Irrigation (in the area) was installed
- Maize and beans were critical crops, and
- Vegetables should be included

We had already been experimenting with twin rows of maize to support tomatoes in a variety trial that Horticulture had asked us to do.



We (probably Tito rather than the rest of us) thought that we could plant early vegetables in the space between the maize rows.



So we set up a new trial based on this idea and on the concept that one farmer, with help from other members of the household should be able to do all the work.



We planted twin row of maize with beans and radishes in between.



When the radishes were sold, they paid for all the cash costs of establishing the crops up to that point.

Radish harvest also “weeded” the maize and beans, increasing labor productivity.



The beans matured before the maize canopied.



And were harvested by hand, the prevailing practice.



Hilling the maize formed beds for vegetables that were transplanted when the maize was “doubled” over to dry in the field.



Cucumbers (or tomatoes) were staked to the maize tying the stalks in tripods for strength.



Yields of cucumbers were much higher and quality was better than cucumbers grown on the ground, the common practice



Before the last  
cucumber  
harvest,



cabbage was transplanted on the edges of the beds.



Then a second crop of maize was planted where the beans had originally been.



Allowing the cabbage to mature  
before the maize canopied.



And pole beans were planted on this second crop of maize. **Seven crops in a year !**



The second crops of maize and beans were harvested in time to prepare the land for the next year.



We had many visitors to our plots



And “Multicultivos” became one of the ten national programs in CENTA





In 1975 there were 600 on-farm multicultivos demonstrations all over the country.