



Powerful Hands Working Together: Shared knowledge reaps bountiful harvest for Ecuadorian family



Maria Elvira Azipuela Zimbaña. Photo: ©CARE/ Silvia Vallejo

Maria Elvira Azipuela Zimbaña, 45, has nine children and comes from a family of farmers. She moved to the 'El Valle del Tambo' valley in Papallacta, Ecuador, with her husband 13 years ago to make a new life. When they arrived, they planted crops on their new land that had grown abundantly for their parents, using skills passed down to them. They planted potatoes, beans, mellocos, jicama, peas, wheat, barley and lentils, but little came to harvest. Worms and insects called 'lancha' ate their crops, and they had a hard time determining the best planting times due to changing weather patterns and climate. They were frustrated as their traditional knowledge failed due to unpredictable and more intense wind, frost and cold.

In a village where most families make approximately \$240/USD a year, the large family struggled, especially during winters when the sun rarely shines in the valley. 'We had to buy everything: potatoes, chicken, vegetables, food, everything, and we spent up to \$30 a week,' Maria said. 'We spent a lot because we're a big family and still it wasn't enough.'

In the village, each farmer had always worked individually on their own properties. 'We used to weed and fumigate, with no one to help us,' Maria said. 'We had only our own knowledge and wisdom.' This changed in 2010 when the community president invited farmers to a meeting with CARE engineers, who offered training on agroforestry techniques through the 'Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes' (*Proyecto de Adaptation al Impacto del Retroceso Acelerado de Glaciares en los Andes Tropical, PRAA*) project. PRAA is an initiative – led by the Ministry of Environment of Ecuador – in which CARE is a strategic partner.

Working with CARE was initially a challenge for Maria, whose husband encouraged her to learn as much as possible. 'Here almost no one knows how to read or write. That's why some people said no to CARE's offer; but the ones that accepted, we had to keep in our minds everything we were taught at the workshops,' Maria said. 'I only took notes of what I could because I only know how to write very little.'

Eventually 40 farmers in Papallacta signed up for the trainings; 32 women and 8 men. One of the first problems they worked on was how to protect the plants from the 'lancha' and frost. Frost is caused by interactions of low temperatures and precipitation, both of which are susceptible to changes in the climate. In Papallacta, the community is experiencing more intense and unpredictable frost. As a result, water inside the plants freeze so they die from the inside out.

One of the first lessons Maria learned was to go back to the agricultural practices they applied before they sprayed their food.



Maria works with other farmers in learning new planting techniques from CARE engineers. Photo: ©CARE/Silvia Vallejo

Instead of using chemicals, they learned to make a natural fungicide called 'BIOL' – a mixture of natural leaves, shell beans, corn husks, whey, molasses, yeast, matico, rabbit manure, chili and urine. The natural BIOL is rich in microorganisms and nutrients, which help seeds become more resistant to low temperatures, frost and 'lancha.' Farmers in the village also learned to plant trees around their gardens to defend them from the stronger wind and cold. Maria is now planting potatoes, lettuce, carrots, celery, parsley, cilantro, radish and onion.

'Before, we had no appetite to eat because the food you buy, once it is cooked, becomes sour. Now, it is not like that anymore. The food is tasty; it has another smell. It's different to uncover the pot with organic food. With chemicals the real flavors of food cannot be smelled; the steam has a different aroma. When I ate potatoes with fungicides, I didn't feel I was eating potatoes,' Maria said. 'Now my children are happy because we don't buy food anymore and we save \$30 that we used to spend each week. Now, with that money I buy small seeds and increase my garden.'

Maria said that her garden has grown due to the natural fungicide and herbs that fertilize and improve soil fertility. Through her increased knowledge from CARE, she has even been able to sell some of her garden crops to better support her family. 'I planted 1.5 *quintals* (150 pounds) of potatoes seeds and I harvested a total of 36 *quintals* of potatoes (3,600 pounds). Now I sell the production at \$15 per *quintal*,' she said.

The lessons learned by Mary and the other 40 farmers show how effective community-based adaptation to climate change can improve food security. 'The Mary from before was sad. I sacrificed myself working in the field but had nothing. I bought guinea pigs and then they would die; the rabbits would die; the chickens would die. I spent a lot and had nothing,' she said. 'Now that I'm going to the workshops and tours, things are different. CARE engineers have taken us to several places. We have in our minds all the knowledge and now we are applying it.'

Today Maria has rabbits, guinea pigs and chickens – everything under a plastic roof, a wood wall and a ceiling of three folded panels. She sells the animals and potatoes. She said she also sees a big change in how she manages her money. She invests part of her earnings, and shares the rest with her family and elders in the community. She has money to invest in her children's education on books, dictionaries, and for transportation for school. She even has time to meet with other people for community clean-up projects called '*mingas*,' where they share food and work, laugh, and have fun.

'I am happy because now I have my own food and know how my hands work, and what kind of food I put in my house. I don't get lazy because I see the garden flourish when previously it had nothing. When I cook, I am happy to go into my garden and take what I want to cook. I choose the crops I'm going to eat... and I no longer depend on others,' Maria said. 'I feel like I am flying...'

For more information on the PRAA project, go to Andrés Córdova Andres.cordova@ec.care.org; or Carolina Mancheno Carolina.mancheno@ec.care.org; and on CARE, Adaptation & Food Security, go to: www.careclimatechange.org/publications.



Maria and one of her sons explain how they are raising rabbits, which provide manure for the natural fungicide 'BIOL.' Photo: @CARE/ Silvia Vallejo



Maria shows off her potatoes. Photo: @CARE/ Silvia Vallejo