



INDIVIDUAL TERRACES

Fruit tree nests



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Eliseo López Escalante shares what he's learned at his farm "El Proceso", located in the community of El Paraíso in El Salvador (San José El Naranjo canton, Jujutla municipality, Ahuachapán).

"I've had a lot of hardships in my work on my farm because the terrain has more than a 40% slope. That's why I liked the idea of the fruit trees. I had to adopt some techniques and practices

that CVX (Local SCIAF partner – "Comunidades de Vida Cristiana"–, CVX) promotes.

We don't get a lot of water here. The springs are small, so you can't really use that water to do anything on the farm. This work has taught me a lot because when I planted the first fruit trees, they failed. My field was very deteriorated.



So to repair the soil I started making swales, green fertilisers, and adding organic material. On one of the visits, the technician asked me: 'Have you tried individual terraces?' I started asking: 'What's that? How do you make that?' I went and made an individual terrace for the first tree and I liked it. Now I've got 62 terraces..."

Purpose of individual terraces

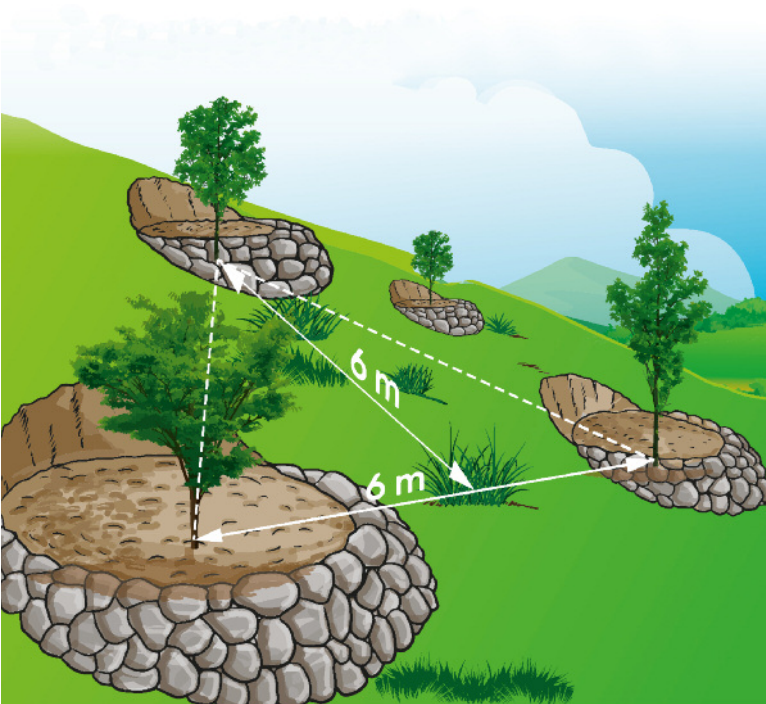
This practice is used to deal with more and more frequent droughts brought on by climate change. They're small round platforms, two metres in diameter, built on irregular landscapes of up to 60% slope.

They consist of cutting the ground on the top part of the circle and taking that soil and filling the bottom part, leaving a slight slope towards the back of the terrace. These terraces are perfect for planting fruit trees and other perennials on a contour in staggered rows to form triangles between the rows.

These individual terraces are combined with organic barriers and stone retaining walls along the edge of the filled-in bank. This ensures an optimum development for each tree, there's better rainwater infiltration, moisture is preserved due to the accumulation of water, and soil erosion is reduced.

Step by step: Building an individual terrace

1. Lay out the contour lines and mark them with stakes with the help of the A-frame. Contour lines are the basis of all soil conservation works, such as ridges and furrows, swales, barriers, and terraces.
2. Measure and stake the places where trees will be planted. Use the staggered row method by using a string triangle. This way better usage is given to the space left between plants. With this method of planting, for every group of three, the centre plant goes off the contour line, forming a triangle.
3. When the slope of the terrain is between 9% and 40%, it's necessary to make contour lines. Always lay them out using the A-frame.
4. Using the digging bar or a stick, draw a circle around the demarcated stake, keeping it in the centre of the circle. There should be one metre from the centre to the edge.
5. Start digging from the centre up. The soil you remove gets piled up on the bottom part, inside the circle. This soil will be the fill for the terrace. Little by little the terrace starts taking shape. For this you need the shovel and the hoe.
6. Eliseo López Escalante leaves a 6-metre space between the terraces. This depends on the type of tree and the planting distance it needs to grow and develop.
7. Like in the case of don Eliseo, it's recommended to build a stone wall to prevent the dirt from falling of the terrace, taking advantage of locally available materials. This way the terrace won't crumble. One person can build on average about four terraces per day.
8. Since the soil is very eroded or washed out and has few nutrients, it's necessary to use organic fertilisers. After digging the planting hole, place five pounds of fertiliser at the bottom such as bokashi, or compost made on the farm.
9. When ready to plant, remove the nursery bag from the plant and be careful not to damage the roots. Place the plant in the centre of the hole and bury it level with the ground.





Then start filling the hole with the original loose topsoil you first removed. Then pack the soil down with your hands and then with your feet in order to get rid of airspaces that can cause the roots to rot.

10. Once the terrace is finished, cover it with organic material from crop residues, such as beanstalks, maize stalks, husks and hay.

Tools and materials

- ✓ A-frame
- ✓ Tape measure
- ✓ Machete
- ✓ Shovel
- ✓ Tree planting bar
- ✓ Iron digging bar
- ✓ Nursery plants
- ✓ Fertiliser
- ✓ Rocks
- ✓ Mulch or crop residues



Costs and difficulties

Materials	Cost in dollars
Tape measure	\$10 USD
Four fruit tree plants	\$20 USD
Organic fertiliser for four plants	\$2.5 USD for 20 lbs. of fertiliser
Labour	\$8 USD for four holes a day
Total	\$40.5 USD

Encountered difficulties

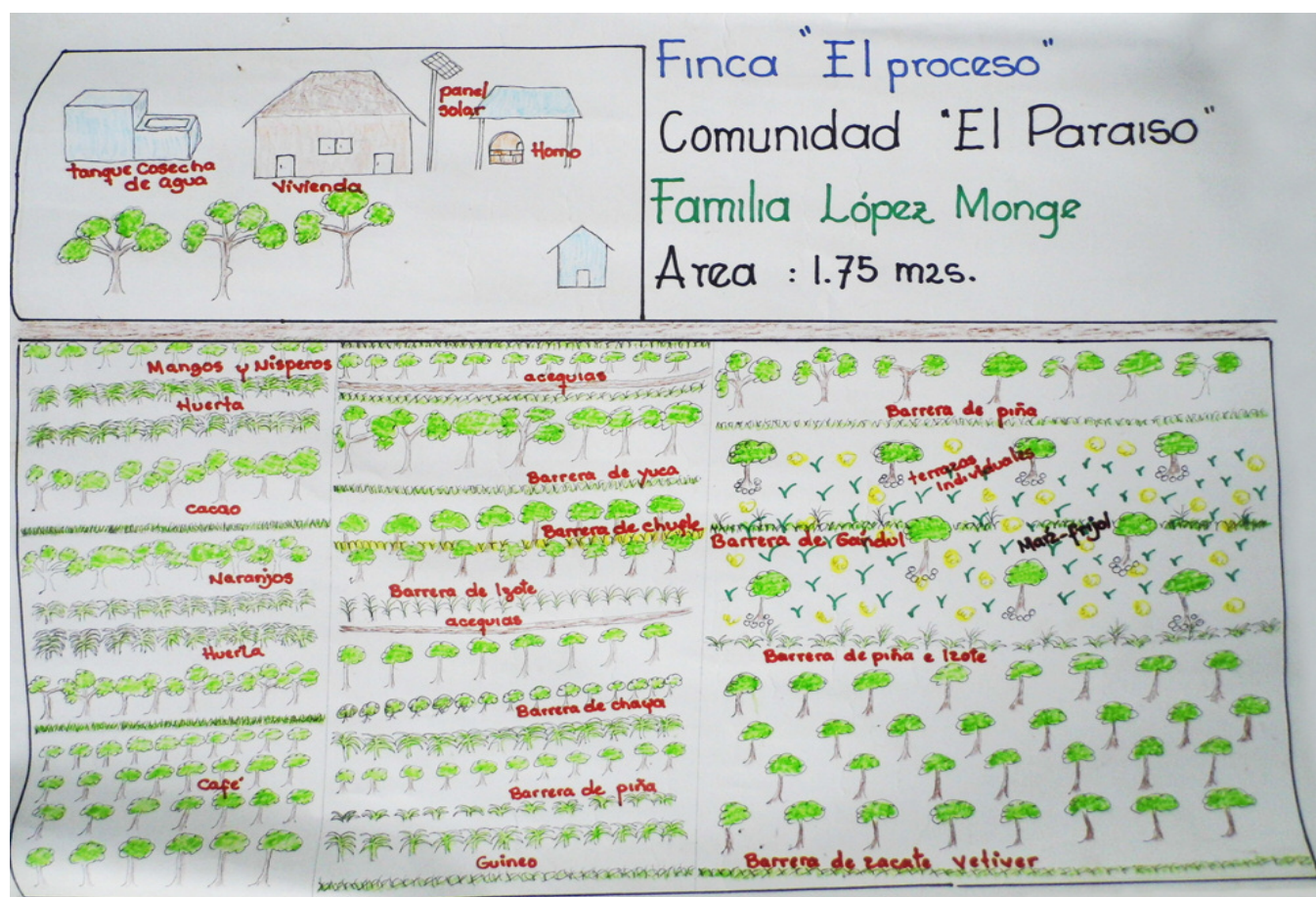
- Not having your own nursery raises the cost
- Water shortage
- Not building ditches to strengthen water infiltration and reduce soil erosion
- Not having the necessary tools to build the conservation works
- Insufficient mastery of grafting and pruning techniques
- No fence around the terrain to protect the plants from cattle
- Farmers not relating this practice directly with food security

Recommendations

- ✓ When the terrain has less than 8% slope, it's enough to just build ridges and furrows along the contour line.
- ✓ When the slope is over 40%, it's necessary to build terraces. There are two types: bench terraces, or individual, circular terraces.
- ✓ Make your own nursery to lower the costs of starting an orchard.
- ✓ When you don't have compost, use chopped crop residues mixed with 15-day-old cow manure and soil from the area so that the manure won't burn the roots of the young trees.
- ✓ Individual terraces require other promising practices for their construction and proper functioning. For example, making them along contour lines, staggered planting, fencing in the terrain, and building other soil and water conservation works such as swales and organic barriers.
- ✓ Don't plant grafted nursery plants that have damaged leaves, poor development, are discoloured or wilted, or have so many offshoots that you can't tell which the graft is.



- ✓ It's very important to have the will and disposition, as well as sufficient manpower to build the terraces. That's why it's important for the family to work together.
 - ✓ The first two years are vital to ensure the saplings take root.
 - ✓ It's important to do forestry management activities, such as fertilise twice a year. After every pruning, remove plant suckers, control weeds, prune for structure, form and health, and prevent insect attacks and diseases.
- ✓ Don Eliseo, on seeing the benefits of individual terraces, says "I haven't stopped making individual terraces. Every time I plant a tree, I have to make an individual terrace because with the fruit trees, along with the swales and other practices, the water spring has started recovering..."



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