



CROP DIVERSIFICATION

Don't put all your eggs in one basket



Crop diversification

Don't put all your eggs in one basket



Doña Felipa Joya Cruz of the Río Abajo community in the north of Nicaragua (Municipality of Yalaguina, department of Estelí), has dozens and dozens of different crops and plants in her half-manzana (0.35 ha.) plot.

She tells us how she got started with crop diversification and how she became an expert in companion planting:

“Nowadays we work with diversified production. We don't just stick to what we used to do, no sir, now we'll plant

anything we can get our hands on. In the beginning, the project would bring us the fruit trees and we would plant. Now we do it ourselves: if we find an excellent avocado, for example, we keep the seed and set it to germinate right away. Then when the tree is ready to transplant, we don't wait for the facilitator to tell us when. We look at the moon, and when the phase is right, we transplant.



We're sharp and on the ball now. They taught us real well. Now that we know what to do, we do everything that's best for the farm.

At my age, I plan to keep growing fruit trees, both planted and grafted. The grafted fruit trees start producing right away, and planted fruit trees start producing after eight years, so I gotta grow both, 'cos planted trees last longer and are more resistant to pests and diseases.

They taught us how to graft, too, but we like the native trees more because they open up more, they live longer, and pests and diseases don't bother them so much.

When I'm old, my plan is to live off of selling fruit. Fruit trees will be my livelihood."

Purpose of crop diversification

- ✓ If you plant a field with just one crop and a pest specific to that crop arrives, you can lose your entire harvest. However, on a diversified farm with a variety of different crops, pests can get confused. In any case they will only damage one part of production.
- ✓ Additionally, companion planting with different types of crops like creepers, plants, bushes and trees allows you to take better advantage of the space available.
- ✓ Since different crops ripen at different times, a diversified farm will allow you to harvest during most, if not all, of the year, which will improve family food security.

Step by step: Crop diversification

The process is the same as for an energy parcel:

1. Choose and prepare the terrain

- ✓ Can be flat terrain or on a slope. It's best when it's not too far away from the house, and if there's the possibility of irrigation in case of a prolonged drought. The plot can range in size from 500 square metres to three manzanas (2.1 ha.).
- ✓ Clear the plot before planting, and make a firebreak around it.
- ✓ Build a fence with posts and three rows of barbed wire so that animals won't get in.

2. Crop placement

- ✓ It's best to distribute different crops in blocks: a block of plantain, a block of fruit trees, another block of cassava or yam, and lastly a block with velvet beans that will be rotated with marrow and squash. You can plant pineapples as a living barrier.
- ✓ Recommended planting distances are:

Plantain and fruit trees: every three metres on a ridge, leaving a three-metre gap between ridges.

Cassava: One metre between plants on a ridge.

Yam: one cutting every 30-40 centimetres.

3. Improved planting holes

- ✓ Plant the fruit trees at a distance of three metres on the ridge by three metres between ridges for citrus



trees. With this spacing you can fit 330 plants into half a manzana (0.35 ha).

- ✓ Dig holes 40 centimetres wide by 40 to 60 centimetres deep. In the case of very poor or rocky soils, you can dig holes 50 x 50 centimetres by 1-metre deep.
- ✓ Place a layer of lime or ash and another layer of organic fertiliser at the bottom.

4. Maintenance

- ✓ During the first two years, you'll need to cut back the weeds two or three times during the rainy season. After the third year, one clearing is enough.
- ✓ During the dry season, you can cut-back once at the beginning and leave the weed cuttings as mulch.



Costs (for half a manzana, or 0.35 ha)

	Cantidad	Costo unit.	Costo total
Drip irrigation system (for 1/4 mza.)	1	\$500.00 USD	\$500.00 USD
Rolls of barbed wire and staples	3	\$44.30 USD	\$133.00 USD
Posts	115	\$2.00 USD	\$230.00 USD
Plantain plants	100	\$0.30 USD	\$30.00 USD
Fruit trees	45	\$2.60 USD	\$117.00 USD
Cassava (0.8-metre stalk)	50	\$0.08 USD	\$4.00 USD
Yam	11 sack with 600 cuttings	\$9.75 USD	\$9.75 USD
Pineapple	50	\$0.32 USD	\$16.00 USD
Tools (machete, file, digging bar)	1	\$45.00 USD	\$45.00 USD
Total	1		\$ 1,084.75 USD



Recommendations

- The family must own at least half a manzana (0.35 ha.) of land.
- There should be a well with a pump or some other water source (reservoir) for irrigation.
- It's best to buy two-year-old grafted fruit trees from nurseries.
- For fruit trees that grow very large, like mango and avocado, it's best to plant at a distance of 6 x 6 metres.
- It's better to choose fruit trees that are adapted to the area (climate and soil).
- Instead of using drip lines as an irrigation system, use 16 mm-diameter polyethylene hoses because they're more resistant and rodents won't eat them.
- Drippers and filters must be cleaned constantly, and the irrigation system should be dismantled during the rainy season so it won't get ruined.
- The number of fruit trees you plant should relate to the quantity of fruit that you can sell locally or add value to.
- It's best to start the plantation at the beginning of the rainy season to benefit from five to six months of rain without having to water.
- Plant according to the phases of the moon. As doña Felipa says, *"FEDICAMP brings us calendars that tell you the phases of the moon. The good thing is that if you plant during the right moon phase, the tree bears more fruit. For example, if tomorrow the moon is going to change, I have to plant today to get both moons."*



This publication has been produced with the support of the European Union. The content is the sole responsibility of the author and in no case should be considered as reflecting the views of the European Union.

Credits

Production: Pascal Chaput • **Revision:** Lutgarda Barahona, Louise Joyce, Mark Camburn •
Translation: Juliana Marín, Mark Camburn • **Photography:** Pascal Chaput •
Design: Enmente • January 2018



EUROPEAN UNION



LOTTERY FUNDED



www.sciaf.org.uk

Scottish Catholic International Aid Fund

19 Park Circus

Glasgow G3 6BE

T: 0141 354 5555

E: sciaf@sciaf.org.uk

SCIAF is the official overseas aid and development charity of the Catholic Church in Scotland and a proud member of the Caritas family. Registered in Scotland No: SC012302 Company No: SC197327

<http://europa.eu/>