

fruit tree protocol

Fruit Planting

The planting of fruit trees in urban areas and at the micro-watershed scale contributes to reducing the effects of climate change at the local level and boosts the interest of the population in recovering and maintaining tree cover in the city.

Fruit trees participate in the improvement of a community's environmental conditions, as their presence diminishes the impact of prolonged events (such as drought) on the soil, and contributes to a microclimate's regulation at the local level. Likewise, they regulate the conditions of infiltration and water, protect the soil from erosion, and provide food from the fruits obtained.

Relationship to Sendai and ODS



Sendai: Goal 3 - strengthening inclusive policy implementation through community engagement to improve livelihoods.

Duration

The planting of fruit trees can be done in the first two months of the rainy season, not exceeding this period to take advantage of the water supply. The duration of the plantations will depend on the species planted and the needed maintenance.

Place of implementation

Fruit trees can grow in a wide range of soils as they can find water and nutrients at great depths. Most fruit trees do not tolerate very moist soils (except for bananas). In moist soils, it is necessary to dig a drainage channel to avoid damage to the fruit trees. Most fruit trees prefer direct sunlight.

Beneficiaries (~#)

Emphasis is placed on the collective scale, because it is an action aimed at generating the participation of the resident population in the community. The number of beneficiaries depends on the number of trees and the planed species.

Threats Addressed

 High temperatures

 Changes in rainfall patterns

 Drought

Social and Economic Co-benefits

Increased input

- Uses an area of soil already available and unused.
- Simple implementation, relatively low economic investment, low maintenance costs.

Production

Produce food sources

Social cohesion

Community strengthening, use and strengthening of community's capacities and/or cooperative capacities.



More information:
www.cityadapt.com

Main climate impacts addressed



Increase in temperatures at the local level

The planting of fruit trees will lead to a temperature regulation on the medium term, modifying the microclimate at the site.



Floods

Contribution to the water infiltration through the root system.



Erosion

Mitigation of erosion's effects, through the root system that forms an underground web thus keeping the soil elements together and preventing elements from detaching. It also absorbs the excess water.



Landslides

With a decreased water flow and less flooding, the risk of landslides is reduced.

Implementation phases

Phase 1. Site and species assessment

- 1** Research to compile secondary information is necessary to obtain an updated baseline on the area of intervention, with the aim of learning from activities previously carried out in that area and identifying the local actors to articulate the interventions at the community, municipal or governmental level.
- 2** Coordination is carried out with representatives of the different communities, followed by inception and evaluation visits. It is important to create partnerships to provide information on food safety and production possibilities at the community level.
- 3** A mapping of the area then identifies the physical spaces for the plantation of the fruit species, taking as reference sectors of interest that impact the resilience of the communities.
- 4** An identification of which type of plants are of direct use for consumption and which fruit species are the most common and prevalent for use locally is part of the species' selection process.
- 5** The land's conditions are also evaluated, mainly assessing the availability of physical space and the possibility of plant development in the identified spaces.
- 6** Elaboration of a list of species to be used in arborization actions with fruit trees, in the selected sites. Species must meet some ecological criteria necessary to withstand climatic conditions in the environment, in order to ensure their survival as well as their ability to generate the expected environmental services.

Phase 2. implementation

1 The plants are procured or grown in a nursery, ensuring that they are those with the best possible development, selecting the most vigorous ones.

2 The land where they will be planted is prepared; the planting must involve people from the community, in order to integrate them in the process.

3 The necessary materials and tools are delivered to carry out the sowing, and teams are formed with the participants.

4 The site is cleaned, cutting plant species that could inhibit the growth of plants.

5 The sowing begins. When the space allows it, it is recommended that it be done with a triangular system, sowing the plants 3 to 4 meters of each other according to the species of interest. Sowing through a triangular system consists of planting the trees in rows, but ensuring that the plants in one row face a hole in the following row (see the graph). This type of planting allows more trees to be planted per hectare and reduces self-shading among the planted species. The roots should never receive direct sunlight in order to avoid dehydration.

6 The sowing is done based on the availability of space and the selected species. Holes are dug with the help of duplex shovel or hoe, 40 cm in diameter and 45 cm deep, depending on the species to be planted.

7 The tree is planted by removing it from bag where it was sown, trying not to damage the main root and maintaining the substrate where the plant was developed.

Phase 3. Maintenance

1 Fertilization: benefits the trees, mostly at the time of planting. Usually 2 kg of compost should be applied when sowing, and then again every four months. Fertilizer or compost can be added before (never during) flowering, and again when the fruit is half ripe.

2 Irrigation: young fruit trees are very sensitive to droughts and need daily watering during the dry season in the first two years of their life. Older trees are more resistant.

3 Pruning: Some trees benefit from pruning. When planting, upper strong branches can be selected to become the tree trunk. As the tree grows, branches that are very close or rubbing against each other should also be pruned. This allows air and light to circulate through the tree, reducing pests and promoting fruiting.

Costs and inputs¹

Description	Total
900 Árfruit bowls	\$ 900.00
Tools ²	\$ 263.00
Inputs ³	\$ 99.00
Labour for chapoda, drowning and sowing (70 jornales)	\$ 700.00
Total	\$ 1,962.00

¹ This calculation corresponds to the value of 1 hectare of cocoa cultivated in El Salvador. However, the amount varies depending on the type of fruit, as well as the arrangement and planting system used.

² 4 duplex shovels, 4 chuzos, 4 azadones, 1 wheelbarrow, 2 corvos, 4 cumas, 1 backpack pump, 4 buckets.

³ A organic bonus, rock flour, foliar fertilizer.

Indicators

Implementation	<ul style="list-style-type: none"> ● Planted area (ha)
Quantitative impact	<ul style="list-style-type: none"> ● Growth rate ● Plant density per unit area ● Number of producers involved ● Number of systems deployed ● Rate of involvement of women in cultivation and production processes ● Local temperature ● Humidity level

References

JICA (2017) Manual of the protagonist, Cultivation of Fruit Trees, National Technological Institute, General Directorate of vocational training, Managua, Nicaragua, 135 p.

Alonso Mielgo A. & J. Arcos Martin () Good Practices in Organic Production, Fruit Cultivation, Ministry of environment and rural and marine environment, Government of Spain, 32 p.

Ishpingo Foundation (2012) Practical guide for the cultivation of fruit trees, Seed collection, nursery management, Agroforestry and fruit growing techniques; 52 p.

Technical data sheets of the main native and exotic fruit species- Alto Napo - Amazonia Ecuatoriana, Tena, 2012.