

# Síntesis para decisores

## *Policy Brief*

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## Traditional fruit and timber trees as a contribution to the livelihoods of rural families in the Los Pueblos Blancos region of Nicaragua

Norvin Sepúlveda, Eduardo Somarriba, Rene Ayerdis, Jonathan Cornelius, Justo Castro

### Presentation

The present synthesis is based on the work carried out by Somarriba, et al (2016), which analyzed the results of research on the influence of fruit and timber trees on current land cover, as well as the existence of traditional fruit trees and timber in the region known as Los Pueblos Blancos of Nicaragua.

### Introduction

There are strengths and opportunities for the development of the traditional fruit sector: high agroecological potential, unsatisfied growing demand, changes in consumption patterns, development of tourism, and regional markets. In addition, there is great inter- and intra-specific diversity of fruit trees in the area of Los Pueblos Blancos, which can serve as a source of quality fruit germplasm for productive diversification projects of farms and courtyards that contribute to reducing food insecurity and family nutrition country-wide. However, traditional fruit production is highly dispersed, has low productivity, high intermediation (which results in less income to producers), considerable losses due to seasonally excess supply and lack of industrialization and preservation options, difficulties in accessing financing, and phytosanitary restrictions that limit export, these are some of the limitations of fruit production development in Nicaragua.

This genetic diversity could also be shared with other similar initiatives in tropical regions. On the other hand, the importance of timber trees, especially for making furniture and handicrafts, is growing and until now there has been no knowledge about existing timber volumes of the main species in that region.

The objective of this synthesis is to highlight the importance of fruit and timber trees in the livelihoods of rural families in Los Pueblos Blancos of Nicaragua and their contribution to the stabilization of agricultural landscapes through increases in the tree component.



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## Inventory of fruit and timber species

In the zone, the tree component has been increased mainly due to secondary forest and shrub vegetation. During the period 2000- 2014, the grassland area was reduced by 68% and the secondary forest area increased by over 500%; this could partially be explained by the increase in the price of wood, since there is a lot of handicraft and furniture production throughout the area. This increase in the price of wood directly encourages producers to conserve trees and increase their plantation.

## Fruit trees

In a sample of 87 small farms (average area <2 ha), the presence of 56 varieties of 34 traditional fruit tree species has been documented; this agroforestry resource plays a fundamental role in local economies and diets, supplying the country's main fruit markets. In their yards, producers maintain, on average, 91 trees ha<sup>1</sup> of fruit species of: pink mango, avocado, jocote, mamon and large yellow nance; these were the fruit species with the highest indices of importance. Although fruit trees are not managed properly, production is significant. Of the 87 farms studied, they produce an average of 822,000 units of pink mango and 263,000 units of avocados per year. The most productive species and with the highest gross income are: avocado, mango (pink variety), jocotes, nispero, zapote; these species generate 96% of the gross income of the producers (in relation to fruit trees), as well as being the most abundant species. Tree breeding strategies are still mostly seed-based. The most used are selection and direct seeding (39%), selection of natural regeneration and transplantation (23%), seed selection from another farm and direct seeding (8%). Only 12% of the fruit trees are reproduced by selection of tree cuttings (Figure 1). On the other hand, the greatest number of fruit trees are in

a mature reproductive state, and there are not enough juveniles to replace the trees that are reaching the unproductive adult development stage (Figure 2).

## Timber

Timber trees are a component that acquires value when their wood is marketed. There were 1,131 timber trees (7.5 trees ha<sup>-1</sup> farm and 44.3 trees ha<sup>-1</sup> yard), of which 185 trees have diameters ≥30 cm. Of 23 species that represented 25% of all timber trees inventoried, these can be sawn and marketed immediately. Cedro (*Cedrela odorata*), laurel (*Laurus nobilis*), acetuno (*Simarouba glauca*), madero negro (*Gliricidia sepium*), guachipilín (*Diphysa American*), and falso roble (*Tabebuia rosea*) are the timber species with the highest value indices. Wood is used to make furniture, doors, handicrafts, construction materials for houses and rustic huts, musical instruments and ornaments. Although producers provide little silvicultural management to timber trees on farms, they show good form and health. On the other hand, the legal commercial opportunities within the municipalities are limited, as a result of the existing legislation that brings few incentives to encourage commercial agroforestry production of wood on the farms.

Traditional fruit and timber trees contribute to the livelihoods of farming families, in two ways: 1) direct sale of the fruit and forest product harvests that contribute to income; 2) self-consumption of fruits (improving nutrition of producing families) and forest products that contribute to savings. On the other hand, the tree component contributes to the adaptation and mitigation of climate change as it has a large variety of species and captures carbon, fixing it in biomass.

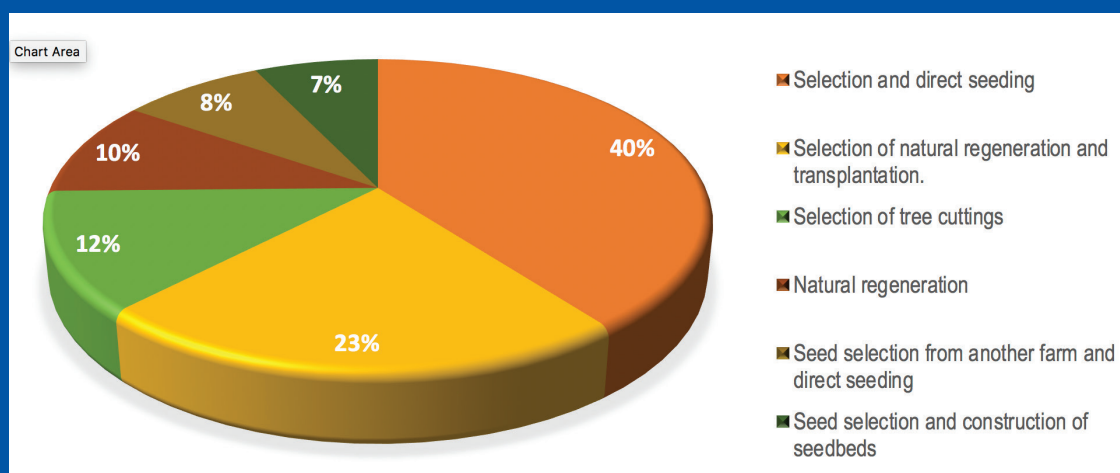


Figure 1. Fruit tree reproduction strategies in farms and yards of the Los Pueblos Blancos region of Nicaragua  
estrategias de reproducción de frutales en fincas/patios en la región de los Pueblos Blancos, Nicaragua



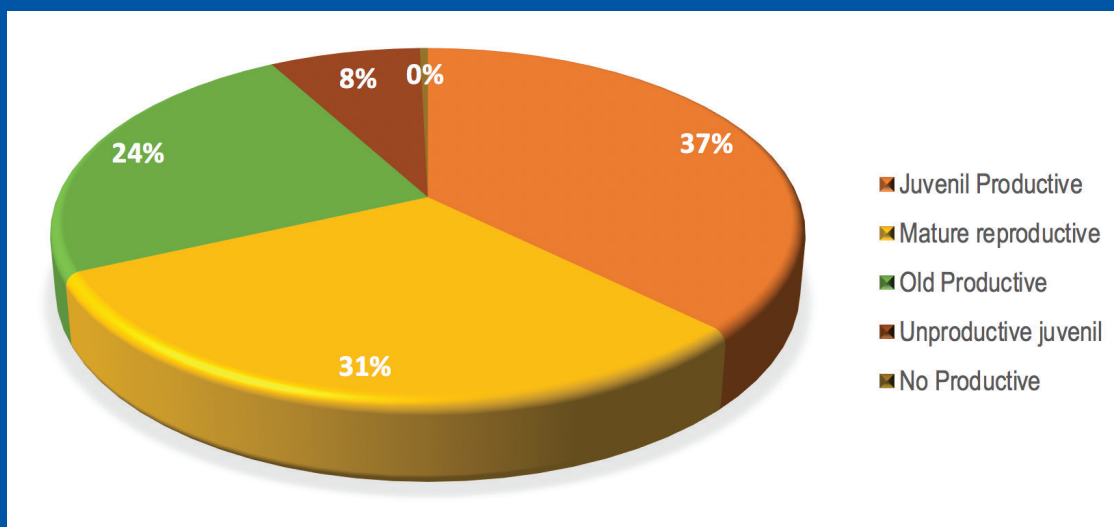


Figure 2. Living status of fruit trees in the Los Pueblos Blancos region, Nicaragua ado de vida de los frutales en la región de los Pueblos Blancos, Nicaragua

## Recommendations to increase the potential benefits offered by fruit and timber

### Fruit trees

- The production of traditional fruit trees with internal and external market potential is even more important, since these represent a monetary increase for producers, as well as a considerable food resource, especially because of their high vitamin content. As they are almost non-existent in many rural homes, we should encourage species with potential for family consumption or sale and high nutritional value, and we must contribute to their conservation as local and semi-naturalized species since many of them could disappear due to their low distribution and abundance.
- For this, it is necessary to develop and adapt new fruit production technologies; for example, asexual propagation techniques of the best fruit genotypes should be implemented. For this, it is necessary to implement broad and sustained education and skill development programs among producers and their families. It should start with research to characterize and select the most appropriate genotypes that provide the basis for genetic improvement for further conservation in germplasm banks. This, in order to mass reproduce them to establish new commercial plantations, the architecture of the fruit trees must be managed according to the species.
- It is necessary to locate, systematize and analyze the available knowledge on rehabilitation and renewal of mixed populations of fruit species in patios and farms. Likewise, there must be training programs for producers and professional technical assistance suppliers for fruit trees.
- Research must be developed with producers to define management options, practices, techniques and the costs and impacts of these actions on fruit productivity. The way forward is clear: improve management practices and achieve more equitable participation in the value chains of





the species and varieties that have the potential to increase producer income, disseminate the importance of fruit consumption at the national level as a strategy to increase demand, add value to the resource and reduce incentives for the conversion of land to other uses, and increase the promotion and marketing effort to the extent that production and commercialization of traditional fruits can be pushed by a sufficiently large domestic demand, aimed at the industrialization of fruit growing in Nicaragua.

## Timber

- The management and use of timber species in the farms and yards of the Los Pueblos area should also be improved. Many of the recommendations listed for fruit species also

apply to timber, and it is also necessary to design and implement a reliable and up-to-date logging, control and monitoring system in the hands of environmental authorities to ensure sustainable management and use of timber species on the farms.

- Review the legislation in relation to trees in agroforestry systems and silvopastoral systems to promote their cultivation, reproduction and sustainable use, as in the case of mixed fruit species in patios and farms. Likewise, they must develop training programs for producers and professional suppliers of technical assistance in fruit trees. Research must be developed with producers to define management options, practices, techniques and the costs and impacts of these actions on fruit productivity.



## References

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Headquarter  
Cartago, Turrialba 30501, Costa Rica  
Tel. + (506) 2558-2000  
comunica@catie.ac.cr  
[www.catie.ac.cr](http://www.catie.ac.cr)

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