

Adapting Successional Agroforestry to a European context with collaborative methods

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Introduction

In the context of climate change and declining fossil fuel reserves, it is important to experiment with new agricultural systems [3]. The Successional Agroforestry System (SAF) has been developed in Brazil with the aim to restore degraded land and at the same time create a diverse and productive agroecosystem which provides a livelihood for farmers [1,2]. Some European agroforestry systems such as "forest gardens" [4,6] share similarities with successional agroforestry systems. This poster presents SAF and an ongoing research with farmers in Southern France.

What is SAF? Successional agroforestry draws inspiration from the processes of species succession related to soil and climatic conditions, and attempts to mimic the functioning of forest ecosystems

Core principles of SAF [5]

- ❖ A mix of species which cover totally or partly the strata and the life cycles from annual species to trees
- ❖ A quick accumulation of organic matter using pruning and systematic trimming of some species
- ❖ Evolution of the plant communities and of the main harvestable crops (photos 1, 2 and 3)



Photo 1 : Three month old SAF plot on the farm of Juã Pereira, near Brasília, Brazil. The dominating crops are maize, onions, lettuce, cabbage and other vegetables



Photo 2 : Three year old SAF plot in Fabiana Peneireiro's farm near Brasília, Brazil. The dominating crops are papaya and bananas. Coffee, citrus fruit, etc. are not yet in production



Photo 3 : Approximately 25 year old SAF plot on the farm of Joachim Milz in Sapecho (Bolivia). The dominating crops are coffee, cacao, oranges, palm-fruit and timber. Before being diversified, this farm had been an orange tree monoculture plantation

Aims of the research

So far, forest gardens have not been developed for professional farming. Drawing inspiration from SAF, a project was initiated to develop a participatory methodology for the design of larger scale multi-strata agroforestry systems with farmers. This research has three aims :

- ❖ To develop a participatory methodology for the design of larger scale complex agroforestry systems with farmers in France
- ❖ To identify successful combinations of species and management practices taking in account wild animal control and amount of work
- ❖ To analyse the performance of chestnut tree installation using SAF compared with traditional planting



Photo 4 : Older part of farmer José's garden (Southern France). Fruit trees and berries were planted in a vegetable garden. Overtime, this garden turned into an fruit-berries orchard

Research approach and tools used

Collaborative and bottom-up research with the aim of creating collective intelligence

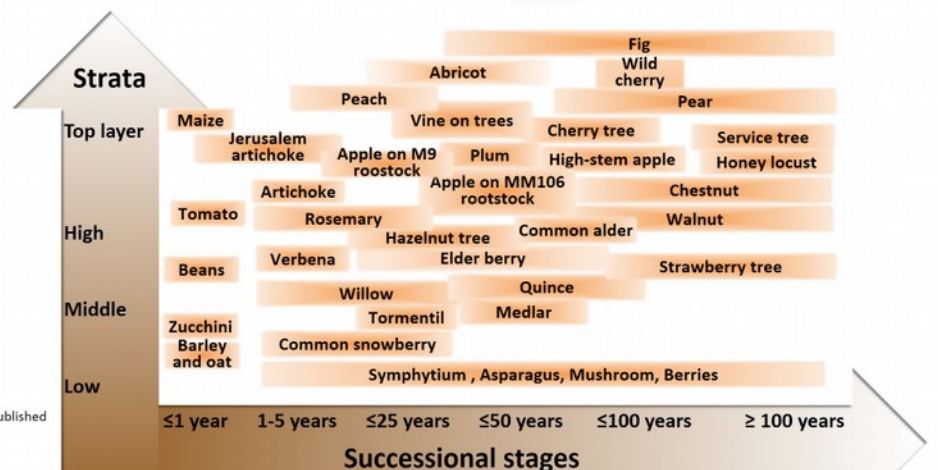
- ❖ Participatory observation
- ❖ Regular group discussions (Photo 5)
- ❖ Collective work (Photo 6)
- ❖ In-depth interviews
- ❖ Visualisation methods (Figure 1 is the first overview of a commun work)



Photo 5 : Exchanging experiences and developing ideas about plant association



Photo 6 : Visit of a new practice's experiment at the association's tree nursery



[1] Goetsch E (1992) Natural succession of species in agroforestry and in soil recovery. Unpublished manuscript available under agendagotsch.com/s/breakthrough-in-agriculture-kn5a.pdf
 [2] Goetsch E (1994) Break-through in agriculture. Unpublished manuscript available under agendagotsch.com/s/breakthrough-in-agriculture-kn5a.pdf
 [3] Griffon M (2010) Pour des agricultures écologiquement intensives : des territoires à haute valeur environnementale et de nouvelles politiques agricoles. Ed. de l'Aube, La Tour d'Aigues
 [4] Hart RA de J (1991) Forest gardening. Green Books, Bideford, UK
 [5] Peneireiro FM (2002) Fundamentos da agrofloresta sucessional. IV CBSAF
 [6] Whitefield P (1996) How to make a forest garden. Permanent Publications, Portsmouth, UK

Figure 1 : draft table of the successional stages and strata of some of the plants that the farmers in Ariège, France, intend to use in their SAF. In this context *strata* is used as a combination of height of the plant and demand for light. *Successional stage* is used as a combination of plants' life-cycle and appearance in the succession of system. Graph adapted from [5]