

Components of the Polyfarming system

The **Polyfarming system** proposes a new way of interrelating the different uses on a farm scale, in a way that improves the economic profitability of the farms that apply it. There are many promising agricultural techniques, but the idea is not to simply collect them, but to combine them in order to **establish synergies between agricultural, livestock and forestry exploitation**. Full-scale Polyfarming is underway in Planeses, a regenerative agriculture farm located in Catalonia.



Figure 1. View of the Planeses farm (Girona, NE Spain) with the different components of the Polyfarming system: (1) forest; (2) fruit trees on pasture where the herd of cows' graze; (3) chickens and rabbits on pasture; (4) non-tillage garden.

■ The Polyfarming system: integrated multi-functional agro-silvo-pastoral management

The Polyfarming system aims to demonstrate that a **new multi-functional agro-silvo-pastoral management system can be applied to farms in Mediterranean mountains**, integrating the different uses of the farm. This system is presented as a profitable management alternative that addresses the problem of abandonment of agricultural and livestock activities in Mediterranean mountain areas and **environmental** (soil degradation, vulnerability to climate change, loss of biodiversity) and **socio-economic problems** (territorial inequalities, loss of productive capacity of the territory) that this abandonment is causing.

The Polyfarming system **has been launched in a pilot farm**, where the proposed agro-silvo-pastoral system is implemented and evaluated on a real scale. **The full-scale functioning of Polyfarming is essential to be able to reach the groups of owners who have to guarantee its replicability in the territory.** In the Planeses farm (Girona, Catalonia) (Figure 1), there are the different elements considered: the forest, the fruit trees on pasture where cows graze, the pasture with small animals (chickens and rabbits) and the untillied orchard.

■ Components of the Polyfarming system

The Polyfarming system is based on the following scheme (Figure 2):

- **The forest is a source of resources**, so that forest management allows quality products, such as wood and firewood to be obtained, and allows other by-products of forest use, such as cuttings, clearings and understory cleaning to be obtained. These by-products are used for the rest of the farm's activities in the form of biochar, BRF, trunk beds or biofertilisers.
- **Livestock is an important tool for managing other activities**: cleaning the understory, managing fruit trees on pasture, improving the fertility of the orchard, etc. At the same time, its integration with other uses significantly reduces the costs and therefore increases farm profitability.
- **Crops (orchards and fruit trees) can be managed more sustainably and profitably in small areas**, using forest resources (biochar, BRF, trunk beds, biofertilisers) and developing pastures to meet the needs of livestock.

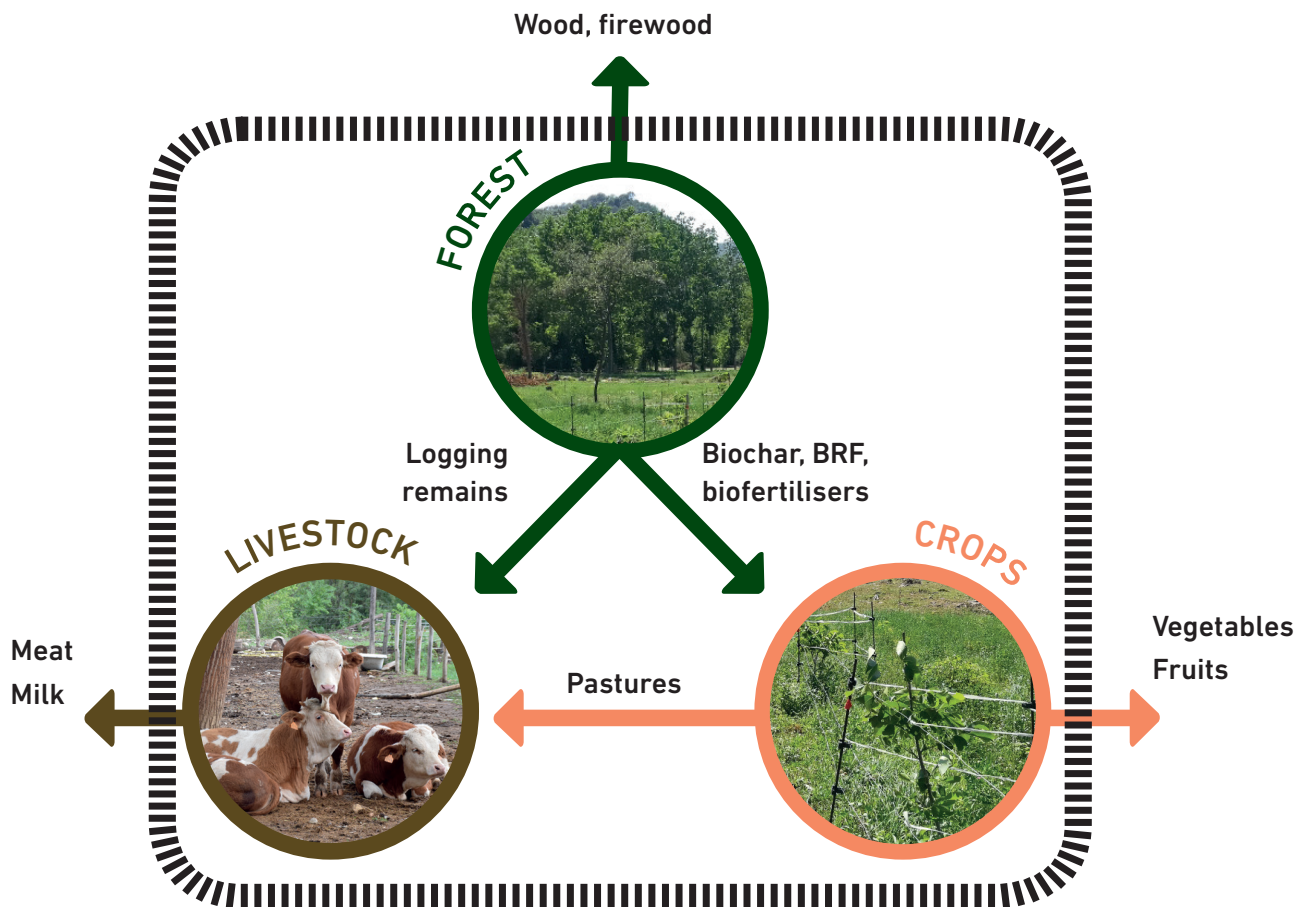


Figura 2. Scheme of the components of the Polyfarming system at farm level. Credit: Creative Disorder

■ Integrated management of the different uses

The **methodological scheme** according to integrated agro-silvo-pastoral planning defines a new way of interrelating the different techniques on a farm scale, so that synergies are established between agricultural, livestock and forestry uses. The Polyfarming system is based on the following components.

- **Integrated forest management** that allows the use of by-products from forest harvesting (cuttings, clearings and understory cleaning) as a base resource for the farm's remaining activities.
- **Management of livestock through controlled grazing**, so that livestock is an important tool for managing of other activities (cleaning the understory, fruit tree management, improving soil fertility).
- **Multiple management of fruit trees** with the production of pastures to complete the needs of livestock.
- **Self-sufficient management of mountain orchards without tillage**, using forest resources: biochar, BRF, cultivation on trunk beds or biofertilisers.

■ Benefits of the Polyfarming system

The multi-functional management of mountain farms has important benefits at all levels.

- **It improves soil productivity**, as it improves soil fertility.
- **It improves adaptation to the effects of climate change**, because it increases resistance to drought.
- **It improves the diversity and landscape of the farm.**
- **It improves the use of the farm's resources**, by putting resources into production that are sometimes abandoned, such as pastures or forests.
- It proposes **accessible technologies** for all farmers.
- **It avoids the farmer's dependence on agrochemical industry products.**
- **It significantly improves the economic profitability** of the exploitation as a consequence of the previous points.
- **It can be combined with recreational activities**, the farmer's own or in coordination with the local tourism sector.