

Lessons learned after the implementation of the Polyfarming system II. Animals and Polyfarming as a whole

From our experience and from the interactions with other researchers and producers, **the Polyfarming team has acquired extensive knowledge over the years** about each of the elements that intervene in the system and about their joint functioning. This sheet **summarises the main lessons learned about managing large and small animals, and about the Polyfarming system as a whole**, including installation and functioning aspects and the combinations between elements.

■ Lessons learned about animal management and Polyfarming as a whole

This sheet summarises **the most outstanding aspects and learning after having applied different techniques to managing large and small animals, and after having implemented the Polyfarming system as a whole**. Thus, from the monitoring and studies carried out at the Planeses farm and taking advantage of the exchanges of valuable information with other researchers and producers, both ranchers, farmers and foresters, we have been able to extract the following lessons.

■ Cow management through intensive controlled grazing

- **Intensive controlled grazing is characterised by using very high livestock densities in small spaces (Figure 1)** with a very short stay and a very long recovery period.
- It is essential to have **permanent plots** because it helps manage the system better and collect information in a much more precise way.
- In intensive controlled grazing, **cows only spend one day in each plot** and therefore do not have time to eat the sprouts of the first plants that were eaten, nor do they cause significant trampling compaction.
- In intensive controlled grazing, **the farmer can divide the herd into two smaller herds**, one with the highest nutritional needs (in this case, dairy cows), and the other with individuals with the least nutritional needs (calves for fattening). First, the herd with the highest nutritional requirements enters the plot and, once it leaves, the second herd enters for grazing it.
- With the intensive controlled grazing **the cows consume the pasture at the best possible time** at each time of the year.
- **The return time to the same plot varies**: in spring it usually takes around **25 days** for the animals to return to it, while in summer and winter it takes longer, between **60 and 70 days**.
- For the proper functioning of the system, there should be at least as many plots as days with the longest return period.
- Herd movements between plots can be daily or twice a day and the **animals can occupy an entire plot or only part of it**, depending on the state of the vegetation.
- Cows are herbivorous animals, so **they get all their food from plants**. During most of the year they must obtain it directly



Figure 1. Cows on the Planeses farm (Catalonia), where the Polyfarming system is implemented. Photo: MJ Broncano.

from the pasture, although in some months the grassland does not grow and they need to receive additional forage.

■ Managing calves for fattening

- Calves for fattening are normally **managed as a second herd**, which has less demands than cows, especially if they are dairy cows, and which enter the pasture plots behind them.
- Calves are **perfectly adapted to being in the forest and in the dehesa** during winter months. However, in these months their production decreases, since the resources they find available are not of the same quality as those of the pasture.
- **They have very low labour requirements**, as they only have to be moved between different plots of pasture, dehesa or forest.

■ Managing rabbits on pasture

- **Rabbit fattening is exclusively carried out in the pasture**, since their diet is 100% herbivorous.
- **Shelters should protect animals** from bad weather and predators, and should **be easy to move around**.
- Animals are kept in a delimited plot of the pasture, with a high density, but only for one or two days (depending on the time of year). The time it takes to return to the same plot can vary between 60 and 80 days.
- **It is much more profitable to raise one's own young**



Figure 2. Mobile shelters for chickens placed in the meadow of the Planeses farm (Catalonia), where the Polyfarming system is implemented. Photo: MJ Broncano.



Figure 3. Hen house located next to the garden. Hens are allowed to go out to the terraces every day for two or three hours at the Planeses farm (Catalonia), where the Polyfarming system is implemented. Photo: Angela Justamante

rabbits on the farm than to buy them, as it requires minimal setup for both females and males.

- With this type of management, **it is the use of antibiotics is virtually unnecessary** and only vaccines are used for viral diseases.

■ Managing chickens on pasture

- **Chickens are omnivores**, in the meadow they consume a lot of grass and seeds, and they also obtain high amounts of live protein in the form of worms and insects.
- Chickens are managed in a **pasture divided into corridors that allow the animals to be moved daily** through a system of fences and mobile shelters (Figure 2).
- For a batch of **400 chickens in a 60-day rotation**, an area of approximately **1 ha** is considered adequate.
- Chickens are susceptible to predation by birds of prey and some mammals such as foxes. A good way to protect them is to **place an electric shepherd around the enclosure** and have trained dogs in the field.
- With this system, **chicken production with a high nutritional value** is obtained.

■ Managing hens in the garden

- The presence of **hens in the garden (Figure 3) contributes to adventitious plant control**, fertilisation with excrement and the elimination of pests.
- The hens can go out to the garden beds every day for a **maximum of 2-3 hours** because if they remain in the garden for a longer time, they could disturb the soil excessively and attack some crops.

■ Lessons learned about the Polyfarming system as a whole

- The Polyfarming system proposes an **integrated system of forestry, livestock and agricultural uses** (including fruit trees and orchards) that interact and complement each other.
- The Polyfarming system promotes various **combinations based on the fact that at least two elements** of different uses interact in the same place. These combinations generate important synergies.
- At farm level, the spatial and temporal planning of the different uses makes it possible to establish a **complementarity of products and labour**, in order, among other things, to reduce the external resources needed and the production costs, and to increase the efficiency of the system as a whole.
- **The outputs of the system are the final products**, which include: firewood, wood, fruits, forage, vegetables, meat, milk and eggs.
- The **inputs to the system** are mainly products from other elements of the system itself, such as grass, forage, grain, leaves, biochar, BRF and wooden beds. However, a series of **products from outside the system** are also required, such as feed, forage and grain (the latter two if the internal production of the farm is not enough), seeds and seedlings.
- In order to apply the Polyfarming system, **it is important to learn to observe and interpret** the whole system in a different way, and this means being in the field a lot and discussing the different aspects of each element in the field.
- The application of a production system such as Polyfarming requires having examples of **pilot farms** that work according to this model.