GRAZING PLANNING GUIDE

LIFE REGENERATE (LIFE16 ENV/ES/000276)

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Introduction

Grasslands occupy more than 1/3 of the ice-free surface, playing a key role as CO_2 sinks, storing 10-30% of organic carbon. They are also essential for the conservation of biodiversity and for feeding herbivores and very important in rural economies.

The conservation of pastures has been carried out in "dehesas" through the development of traditional practices such as herding, rotational grazing, transhumance, and animal fencing. Abandonment of these practices has caused a degradation of pastures. Despite this, in recent years new grazing strategies have emerged such as holistic management, intensive grazing, Voisin grazing... based mainly on grazing planning with frequent movements of animals with high livestock density.

What is grazing planning?

Grazing planning is the system of planning movement of animals among different paddocks (parcels) with the objective of avoiding overgrazing, maximising forage availability and leaving enough recovery time for plants to growth enough again. This requires a large number of paddocks with a small surface area to encourage movement.

Benefits of planned grazing versus continuous grazing

Well-planned grazing where animals are in right place at right time serves as a tool to regenerate land, improve pasture quality, store more soil carbon and reverse desertification.

Figure 1: Cattle under a planned grazing system on the Muñovela farm (Salamanca).

On the other hand, continuous grazing practised for years in "dehesas" has caused overgrazing and soil degradation. Animals feed on same plants constantly and plants lose vigour and eventually die. Only the less palatable ones remain. The same can happen when animals retum

too soon to a paddock and the plant which is growing is eaten and has not enough time to recover. This overgrazing is avoided by planning grazing and establishing short grazing periods and sufficiently long plant recovery periods.

Planned grazing leads to improvements in the soil as it decreases bare soil surface, compaction, and increases water infiltration. In contrast to continuous grazing, which also favours the emergence and dominance of undesirable plants with low palatability, a process that is avoided with planned grazing.

It has also been shown that planned grazing has a higher biomass production, up to two to three times higher. This allows for greater forage autonomy, less dependence on external inputs, and therefore increased long-term economic returns.

On the other hand, movement of animals from one paddock to another improves the health status of the animals, reducing the transmission of diseases and breaking the life cycles of parasites.

Figure 2: Sheep under a planned grazing system on the Muñovela farm (Salamanca).

All these changes indicate that planned grazing leads to improved ecosystem functioning, in particular water and nutrient cycling and increased productivity.

Why plan grazing?

Grazing is planned to achieve the following objectives:

- Improve animal health and production
- Minimise overgrazing
- Improve ecosystem processes
- Regenerate grasslands
- Decrease dependencies on external inputs
- Increase economic profitability
- Store more carbon into the soils

How to plan grazing?

In the Mediterranean climate and therefore in "dehesas" there are two types of grazing planned depending on vegetative growth: open and closed planning period.

Open planning period corresponds to the vegetative growth period, being the months from autumn to spring. At this time it is assumed that forage availability is sufficient to feed the livestock thanks to the active growth of plants that can recover while are grazed. Nevertheless, it is very important to achieve the highest possible amount of forage and the best animal performance, which implies a good use of pastures. It is also to plan to generate sufficient pasture reserves to cover the further closed period, without grass growth.

Closed planning period corresponds to the non-vegetative growth period, when pasture plants are dried. In the context of "dehesa" this goes from June to September/October. In this case it is assumed that there will be no growth and therefore the objective is to manage the available forage, reserved from the previous period, in the best possible way and not to cause negative impacts on soil and animals for the following season, assuming the need to supplementary fodder if pasture in paddocks is not sufficient to maintain animal performance.

To start with the planning, it is necessary to know the land and to have a map with the existing fixed paddocks and the area of each of them. Then it is necessary to have the paddocks available and to schedule all the events on the farm that may interfere with the planning and need to be taken into account, such as sowing, sanitation, shearing, body condition analysis, as well as to establish whether some paddocks should be excluded from grazing or need special attention, due to an excess density of non-palatable shrubs, invasive or poisonous plants, lack of water, etc.

Afterwards, determine the number of animals, in terms of species, sex and flocks, and decide how many flocks are to be kept; low number delivers better results.

One of the key elements for grazing planning is to calculate grazing and recovery times. The following formula is used to determine grazing time:

Average grazing time = Recovery time / Number of paddocks - 1

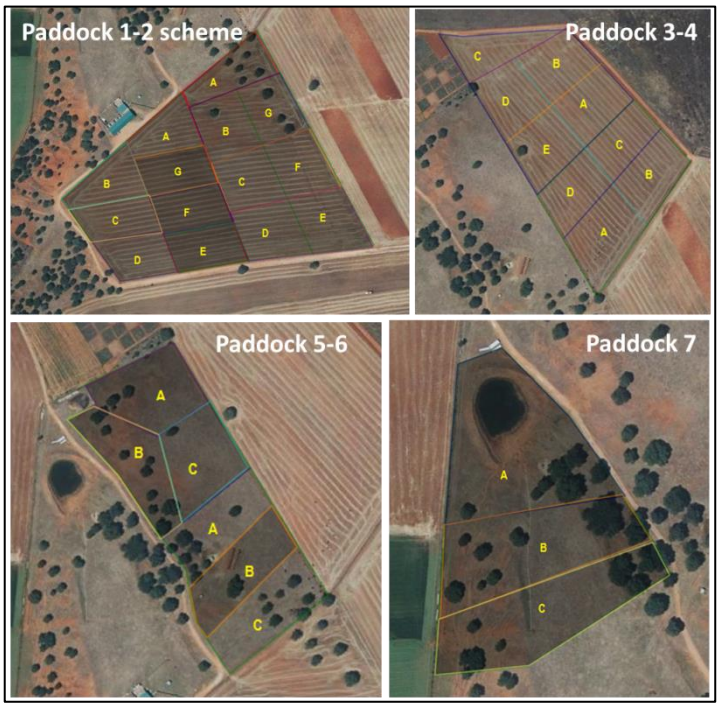

Figure 3: Example of a paddocks map for planned grazing on the Muñovela farm (Salamanca).

Recovery time is usually determined in a fixed way depending on the season and the climatology. In Mediterranean dehesas itt is set at 60-90 for periods of rapid growth and between 90 and 120 for periods of slow growth. In this way the average grazing periods on the farm can be calculated, based on the surface area and forage availability of each paddock.

Finally, once you have calculated the grazing days on each paddock, you need to schedule those days to determine when and where they will be in each period. In this way, planning will allow for greater control and efficiency in the management work. It should keep in mind that the planning is still a plan and can be modified along time due to circumstances and in case estimates have not been adequate and need to be rectified.

The recommendation at the beginning, if the farm is very large, is to test planned grazing in a specific area of the farm with a low number of paddocks. If these paddocks do not exist, they can be implemented by means of a mobile fence system (electric shepherd), which is easy and cheap to apply. In this system there is no defined number of paddocks, but it depends on the area and on the climate and the quantity and quality of the pasture. Together with the design and implementation of increasingly smaller and numbers paddocks, watering must be considered. Water need to reach each paddock, for what either pipelines and drinking troughs or mobile water tanks must be foreseen.

Grazing planning is therefore a system that adapts to each farm and to each circumstance, and there is no specific tool.

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