

Fast rotational intensive grazing

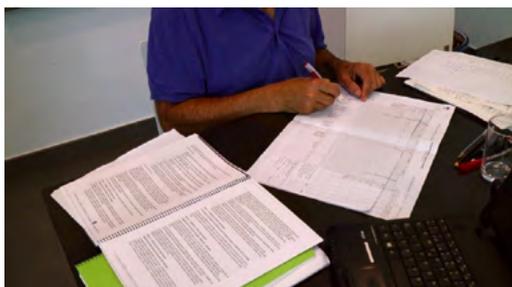
A holistic management approach

www.agforward.eu

Why holistic management?

The increased demand for meat is driven by a rising human population, and a dramatic growth in meat consumption per person. Farmers and scientists have sought to curb the adverse environmental impacts of livestock by increasing production efficiency, and reducing its contribution to human consumption. Reduction in livestock feed components, which compete with human food crop production, is one approach to mitigating negative environmental impacts and strengthening future food security.

Mediterranean pastures, such as dehesa and montado, face considerable challenges. Continuous grazing results in dramatic seasonal variations in grass production and difficulties in providing sufficient fodder for livestock throughout the year. Consequently, the dependence on external feed supplies compromises the profitability of many farms. Better adapted grazing management schemes are needed to enhance the resilience of the dehesas and montados.



Planning how many animals and time per paddock, and periodical monitoring of soil and pasture are the bases of holistic grazing. *Ref: María Catalán*



Sheep grazing under an intensive fast-rotation scheme in Mundos Nuevos Farm (Campillo de Llerena, Extremadura, Spain). *Ref: María Catalán*

How it works

The concept of Holistic Management emphasises that the sward not only provides nutrients to the ruminants, but also contributes to “feeding the soil” (Savory 2013). The basis for this approach is the grazing patterns of wild herbivores roaming unrestricted over large rangelands.

These animals will often spend a short time in a small area before moving on, leaving behind concentrated manure, urine, and considerable plant residues both above and below ground, including remaining root material. These contribute to soil organic matter and nutrients.

How to implement

The basis of the intensive fast-rotation grazing is planning. After establishing the values of the farm (the holistic context), three stages of planning should be developed: grazing, financial and land. Monitoring is essential to ensure timely feedback, and to make changes if the current approaches do not satisfy production or holistic goals.

Two separate grazing plans should be developed in areas where, due to excessive cold or dry conditions, there is insufficient time for pasture recovery. To know and respect the recovery period (*RP*) of the grass, it is important in order to maximize pasture production and its environment-side effects. It is also important to avoid grazing too early, and when grasses are still recovering. The grazing period (*GP*) can be estimated according to the following function:

$$GP = \text{Recovery period (RP)} / (n - 1), \text{ where } n \text{ is the number of paddocks.}$$

More paddocks equates to a shorter grazing period. This leads to a better grass response, less disease problems (parasites mostly require seven days to complete their life cycle) and has a positive animal impact (e.g. less compaction).

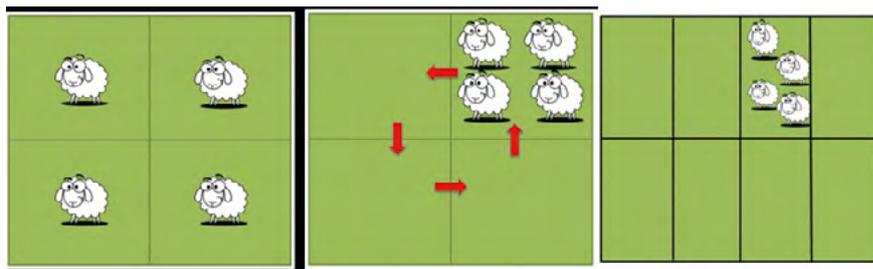
Advantages

This new pasture management approach was introduced to Spain and Portugal five years ago. The farmers who have adopted the approach have increased stocking rates while improving the health of *Quercus* trees and water cycle, and reducing erosion.

As this is a new system, there is still limited knowledge regarding how it works in practice, especially the animal performance (growth and health) and pasture quality.

For effective Holistic Management, the whole farm should be split into many small paddocks using electric fences.

In addition, a low-cost network of pipes and livestock waterer is needed to provide the livestock with sufficient water.



Comparison of continuous grazing (left) vs fast-rotation grazing (center and right) in an example with 4 and 8 paddocks and 180 days of growing season for the pasture layer.

Continuous grazing: 4 paddocks, grazing period of 180 days (the whole growing season), with no time for recovery; days of use per paddock: 100 % of the days of the growing season.

Fast-rotation grazing: 4 paddocks, grazing period of 20-40 days with recovery periods of 60-120 days; days of use per paddock: 33%.

Fast-rotation grazing: 8 paddocks, grazing period of 8-16 days with recovery period of 60-120 days; days of use per paddock: 13%.

Ref: María Catalán

The most important commercial activity in dehesa and montado is free-range livestock farming (Campos et al. 2013). The management of natural pastures aims to increase the pasture quality (legumes, protein, minerals) and quantity. Consequently, management is focused on three fundamental issues: livestock management, legumes introduction and phosphorus fertilizer application. The sustainability of dehesas has been questioned in recent years as a result of the adoption of more intensive and simplified management systems which have impacted negatively on vegetation and soil properties, and increased soil erosion rates.

The Holistic Management approach, based on time-controlled grazing systems, not only increases productivity, but also enables ecosystem improvements: this includes soil properties (soil structure, amount of organic matter, water efficiency, and availability of soil nutrients), and pasture species cover and composition. Long recovery periods also provide an opportunity for the natural regeneration of tree cover.

Further information

Campos P, Huntsinger L, Oviedo JL, Starrs PF, Diaz M, Standiford RB, Montero G (Eds.) (2013). Mediterranean Oak Woodland Working Landscapes. Dehesas of Spain and Ranchlands of California. Series: Landscape Series, Vol. 16, Springer.

Olea L, San-Miguel A (2006). The Spanish dehesa. A traditional Mediterranean silvopastoral system linking production and nature conservation. Grassland Science in Europe, 11: 3-13.

Pinheiro Machado L (2014). Pastoreo racional Voisin: tecnología agroecológica para el tercer milenio. Ed. Hemisferio Sur.

Savory A (1999). Holistic Management: A New Framework for decision making. Island Press, Washington, EEUU

Schnabel S, Ferreira A (2004). Prolog. In: Schnabel S, Ferreira A (Eds.), Advances in GeoEcology 37: Sustainability of Agrosilvopastoral Systems: Dehesas, Montados. Catena Verlag, Reiskirchen. 2 pp.



Natural holm oak regeneration under Holistic Management (Defesinhas Farm, Elvas, Portugal)

Ref: María Catalán

María CATALAN, Gonzalo PALOMO and Gerardo MORENO

info@pasto.re

Universidad de Extremadura

INDEHESA – Plasencia, Spain

Cooperative PASTO.re/ACTIVA.Co

www.agforward.eu

November 2017

This leaflet is produced as part of the AGFORWARD project. Whilst the author has worked on the best information available, neither the author nor the EU shall in any event be liable for any loss, damage or injury incurred directly or indirectly in relation to the report.