

Improvement of the Mediterranean agro-silvopastoral system Montado

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Introduction “Montado” is an old man-made agro-silvopastoral system, with three vegetation components (trees, shrubs and herbs) used for multiple species animal husbandry in extensive production systems (Potes & Babo, 2003). Several authors have reported on the improvement of Mediterranean annual self-reseeding pastures (Espejo-Diaz, 1996) and increased stocking rates.

Methodology A randomised block experiment carried out with four replicates and four treatments: T1-maintenance of the existing ecosystem; T2-liming (2000kg/ha) and P fertilisation (46 kg of P₂O₅/ha); T3-T2 plus introduction of annual self reseeding legumes without soil disturbance (direct seeding); T4-T2 plus introduction of annual self reseeding legumes with soil disturbance. Grazing was carried out in autumn (O), winter (I) and spring (P): only by cattle (PB), only by goats (PC), only by sheep (PO) or by the three animal species together (PM) at the same grazing pressure of 1780 kg/ha liveweight. The trial lasted three years. The frequency of grasses, legumes and ‘other species’, organic matter (OM), crude protein (CP) and digestibility of OM (DOM) were determined.

Results The pastures consisted for 70% to 80% of grasses. The frequency of legumes could be increased up to 50% with liming and P fertilisation (Figure 1). However, the introduction of legume seeds could also increase legumes to 37%.

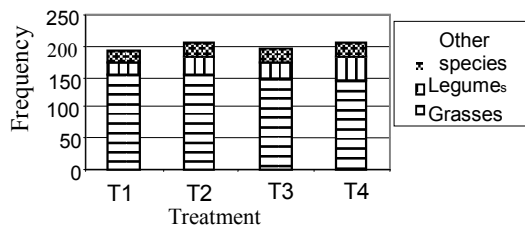


Figure 1 Frequency of grasses legumes other species for treatment

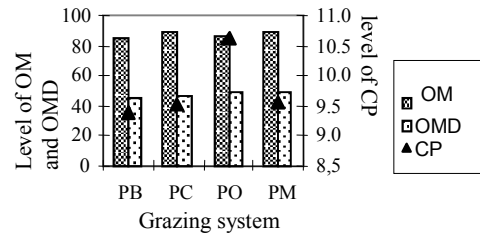


Figure 2 The influence of grazing system on the organic matter (OM), organic matter digestibility (OMD) and crude protein (CP)

The most effective control of other plant species was obtained by goat grazing (PB 22, PO 30 and PC 5%). Sheep grazing resulted in significantly higher crude protein levels (Figure 2).

Conclusions This experiment confirmed the value of fertilisers (liming and P), plant introduction and grazing management for production system improvement (Lazenby & Tow, 2001).

References

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