Nutritional value of shrubs in agroforestry systems

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Galicia holds the sixteen percent of fired area of Europe. Silvopasture is an adequate land management system for Galicia as it reduces fire risk, improves silviculture practices, increases land rent and promotes rural population estabilisation. Forest shrubs understory grazing at adequate stocking rates reduces forest fires as a replacement of shrubs by herbaceous vegetation is caused, which has less fuel accumulation under the tree. The herbaceous understory favors silviculture practices as pruning and thinning can be more easily carried out with herbaceous understory than with shrub understory. Understory grazing also increases economic land return as animal products can be sold and usually faeces deposition of some animals can subsequently increase mushroom production. Forage value of the shrubs should be carefully considered, being the protein content, one of the most important indicators of forage quality, besides palatability and digestibility. Most important shrub species in Galicia are gorse (*Ulex* sp), representing around 73.47% followed by species of genus Erica (*Erica cinerea* 29.98% and *Erica arborea* 16.43%) and *Cytisus* sp. which accounts around 18.28% of shrubby vegetation of Galicia. Other species such as *Chamaespartium* are also present. Knowledge of protein content and its seasonal distribution of most important shrub species in different areas will allow us to know their quality as feed for livestock. On this purpose, a study aiming at evaluating the protein concentration of the edible part (branches below 0.5 cm of diameter) of most common shrubby species in Galicia (*Cytisus striatus* Rothm., *Erica arborea* L., *Erica cinerea* L., U*lex europaeus* L. and *Ulex minor* Roth) comparing two different areas from a climatic point of view: Taboada (Mediterranean-Atlantic transitional area) and A Fonsagrada (Mountain Atlantic region) was carried out. Protein content was higher for all species in the Mountain areas than in the Mediterranean-Atlantic transitional area for all evaluated seasons. Protein content was around 8.9% for *Cytisus* sp, 6% for *Erica* sp and 9% for *Ulex* sp in Taboada and 16%, 8%, 11% for these species in A Fonsagrada, respectively. This may be explained by the negative effect of hydric deficit on shrub quality in the Mediterranean areas and may justify the fact of the transhumance and transtermitance management from lowlands to highlands. All species have a higher level of protein conten in the autumn, with lower levels in winter. All shrubby species have a higher level of crude protein than the herbaceous ones during the summer, period when all aerial part of the herbaceous species are senescent due to the summer drought. All found levels were high enough to maintain goats (6%), with the exception of the winter period in Taboada.

Figure 1. Group of horses rummage ulex.

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