

Farming systems for suckler cows on Peneda's Mountain.

J.C-R Santos¹, L.F. Pacheco¹, R. Ferreiro²

¹*Divisão de Produção Animal (DRAEDM)-Quinta do Pinhó, 4800-875 S.Torcato-Portugal.* ²*A. N. C. R. G., R. Soares Pereira, 26. 4970 Arcos de Valdevez. Portugal*

Summary

The aim of this work is the analysis of a suckler cow system in order to characterise it and to contribute to the definition of conceptual methodology. We have carried out 95 inquiries of 4 hours each, with all the families of the three villages studied and a further systematic survey was carried out for 9 families. The decision-making process is developed in relation to land management according to the available man power. Due to the incompatibility between nutrient requirement systems (UF, AFRC or NRC) and live weight, feed intake capacity and grazing system of the suckler cows from Peneda's Mountain, research is necessary in order to find the correct solution for feeding systems.

Key-words: livestock farming systems, suckler-cows, analysis, mountain.

Introduction

This work was carried out within a R&D project¹ "Sustainable agricultural development: methodologies and assessment criteria definition for mountain areas", begun 1997. It is a large multi-disciplinary research project. The goals of this project are: to achieve a methodology for sustainable agricultural development programme; to characterise the various agriculture systems; to make proposals for policy in agricultural development. The preservation of the natural resources and landscape in a fragile territory, as this mountain is, involves the maintenance of human occupation and farming activities. In the last decades the population decrease has been large (-27.2% between 1981-91) and is continuing, leading to the dismantling of social organisation and large change in land management

The animals (bovines, goats and horses) are raised to provide income through sales and subsidies and also to provide a source of traction power. Field crops are mainly used to feed the animals and also provide some self-consumption. The income from selling crops has no importance. On Peneda's Mountain more than 3000 bovines graze freely for 10 months of the year and 700 to 1000 goats graze on an annual basis guarded by two shepherds. Five hundred horses graze freely all the year round.

The aim of this work is to analyse the suckler cows system, in order to characterise it and to contribute to the definition of conceptual methodology. We intend to present alternative solutions to solve the problems detected.

Material and methods

¹ Held by PAMAF IED, 0036. Jointly with "Management routines in goat systems on Peneda's mountain: evaluation and perspectives" from L.F. Pacheco, J.C-R Santos, R. Ferreiro

Peneda's Mountain is located in the Northwest of Portugal, has a rainy climate (in average more than 2000 mm) with a big thermal amplitude ($\Delta T > 20^{\circ}\text{C}$), and very steep slopes (about 20% of the territory has slopes greater than 30%). The three villages studied are at 400-650m above sea level while the main feeding area reaches 1400 m above sea level. This main feeding area (over 8,000 hectares), is common land -*baldio*- and only grows semi-natural vegetation without soil management. The suckler cows are of importance because they comprise more than 65% of the total animals and more than 40% of the overall gross standard margin.

The analysis was made assuming that every farm is a system itself and where each family is very important in the territory management (Olaizola & Gibon, 1997). We have carried out 95 inquiries during 1997, of 4 hours each, with all the families of the three villages (Padrão from Sistelo parish, Lordelo from Cabreiro parish and Rouças from Gavieira parish) whose inhabitants (252) are the main users of this mountain. After the inquiries, we carried out a systematic survey (September 1997 – March 1999) of nine family-exploitations representatives from the three villages according to the suggestions made by Gibon (1992). As suckler cows graze freely 10 months per year and because of the orographic characteristics of the Peneda's Mountain, we have looked for methods with acceptable consistency and standardisation but which were feasible. So we studied the feeding strategy through direct observation using focal-animal sampling method. This study was done in 24 hours periods, throughout the year by teams of two people on a six hours spell basis. We have chosen the method described by Balent & Gibon (1985) for the ingestion measurement of grazing suckler cows.

The farming system

The population of the three villages have unbalanced age structures (≤ 40 years, 34% of the population; ≤ 60 years, 31%; and > 60 years, 35%) and a very low level of qualification (69% cannot read and write). During the last 10 years there are more fields being left without management because of the ageing population. The farmers have to walk to the mountain (once a month, taking a full day's walking) to locate and search for cows that have given birth. The number of calves produced varies between 30 and 40 calves weaned per 100 cows. The calves are sold weaned at 4-6 months and at about 130 kg live weight. The bovines are also the main traction power to plough fields. Parturition is spread all over the year, because males graze together with females, and also because the reproductive cycle is only ruled by day length and latitude. With regard to feed intake (between 10 and 15 kg of dry matter/day for a cow in a maintenance status with 350 kg of LW) we consider that the common feeding evaluation systems (UF, AFRC or NRC) do not cover the characteristics of the suckler cows of our mountain because their adult live weight and their grazing system. These suckler cows prefer herbaceous plants more than shrubs. This impact is greater in autumn than in winter (herbaceous 97%, shrubs 3%, in autumn; herbaceous 83%, shrubs 17%, in winter). Grazing in the night (21% of the total 12 hours grazing period) occurs mainly in the autumn. The decision-making criteria is related to the management model of the farmers and is presented in Table 1. This decision-making process is developed in a perspective of territory management according to the available labour in the family.

Table 1 – Decision criteria of the farmers.

<i>ACTIONS</i>	<i>CRITERIA</i>		<i>MODALITIES</i>	<i>MOMENT</i>	<i>SPACE</i>
	<i>FARMER</i>	<i>OTHERS</i>			
Animal Location/ Movements	Feedlots	Temperature	Climbing up	End of February	Common land
		Day length	Descending	November	Villages
Feedlots	Needs in traction power		Plough fields	End of February	Village, common land
			Grazing	End of February	Common land
Alternate grazing for cleaning of the pastures	Needs in feeding the bovines		Hay fields, ray-grass fields	November to February	Village and close common land
	Needs for growing hay		Hay fields, woods and common land	February	common land
Feed supply	Suckler cows Bulls		Hay/maize straw + maize grain (9.6 Kg DM/day)	November To February	Village (Cow-houses)
	Weak calves Other bovines		Hay/maize straw (8.3 Kg DM/day)	February	

Keypoints and future perspectives for a sustainable development

1- As the qualification level is too low, we intend to build up a scheme for a professional school in agriculture. 2- As the age is progressing the capacity of the farmers for travelling to different locations is decreasing. We think that the horse can have a very important role in transporting farmers to the mountain. We also intend to develop machinery to make it easier for the farmers to perform the tasks. 3- Due to the unsuitability between nutrient requirement systems and live weight, feed intake capacity and grazing system of the suckling cows from Peneda's mountain research is necessary in order to get the correct solutions for this feeding system. 4- The need to build new cattle-sheds led us to choose recyclable materials such as straw bales in order to protect the environment and landscape.

Acknowledgements

The authors are grateful to Tony Waterhouse for his English review.

References

- Balent, G., Gibon, A., 1986. Mesure de l' ingestion des ovins et des bovins au pâturage hors domaine experimental dans les pyrenees centrales. Cahiers de la recherche-développement. 9-10: 84-91.
- Gibon, A. 1992. Dispositifs pour l'etude des systemes d'elevage en ferme. In: The study of livestock farming systems in a research and development framework. A. Gibon & J.C. Flamant (editors), Wageningen Pers, Wageningen, The Netherlands, 410-422.

Olaizola, A . M^a & Gibon, A ..1997- Bases teóricas y metodológicas para el estudio de las explotaciones ganaderas y sus relaciones con el espacio. La aportación de la escuela francesa de sistemistas. ITEA. 93A, 1: 17-39.