

# EXTENSIVE MANAGEMENT OF GRASSLANDS IN CENTRAL FRANCE: EFFECTS ON ANIMAL PERFORMANCES AND ECONOMICAL EFFICIENCY

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## ABSTRACT

The farming context for livestock production has changed in Central France for the last 15 years. There has been a release of land and a change in financial support that favoured extensive systems. The management and economical results of two experimental sheep farmlets are compared; the extensified has an area 45% larger than the control but the number of ewes are the same. The optimization of managements in both units leads to practices rather different for fertilising, fodder making and grazing. The effects are the achieving of similar animal performances and the reduction of expenditure on grasslands (-30% per ewe) & on animals fed (-9%) in the extensified. The gross margin is therefore 30% higher in this system which covers easily the extra fixed costs induced by the increase of area.

## KEYWORDS

Extensive management, grasslands, sheep, animal performances, economical efficiency, grazing, fertilisation, France

## INTRODUCTION

The central part of France is mainly covered by plains of low or mean agronomical potential. Sheep and cattle production is the main farming activity. For thirty years, in a good economical and political context for production increase, farming systems have been intensified. Since the mid eighties, the context evolves rapidly: the market is going down regularly and subsequently a decrease in the number of farms & a release of land is observed. Public financial support is also being changed from a product basis to a herd or land basis.

Therefore combinations of production factors that use more land and less inputs for the same amount of livestock are in first approach accurate for the success of farming and the entire occupation of rural space. Nevertheless little is known about those so-called extensive systems. A comparison between two sheep experimental farmlets, one close to the average local system and one extensified, give the outlines of the management of an extensive unit and show that its economical results are better than those of the more intensive one.

## MATERIALS AND METHODS

The experiment was undertaken on the farm of Montmorillon School of Agriculture, Central France (0°50' West, 46°25' North) from 1993 to 1996. Average stocking rate in the locality is 8 ewes per hectare with the number of lambs produced being around 110 per 100 ewes. Two treatments were carried out: the control spread on 12.8 ha and the extensified on 18.6. Both were stocked with 100 ewes giving stocking rates of 7.8 and 5.3 ewes per ha. In the 2 farmlets the objective was to achieve animal performances at least similar to the local figures but also to optimize the use of grass in order to reduce the major inputs (fertilisers and concentrates).

The grasslands were 100% seeded with the same distribution in both treatments: 40% with tall fescue for early & summer grazing and hay making (mid-June), 30% with late flowering perennial ryegrass / white clover mixture for spring grazing of suckling ewes and 30% with early flowering perennial ryegrass / white clover mixture for wrapping (early May) and grazing on regrowth.

Practices on flocks answered to similar rules in control and extensified: the ewes lambed once a year (1/3 in October and 2/3 in February-March), they were housed in winter and their feeding needs and sanitary requirements were covered at any stage in order to keep body condition scores (Russel et al, 1969) above 2.5.

The management of grasslands and flocks was provided for being gradually adjusted in order to optimize the economical results. In this purpose a suitable decision-making process was carried out (Chabosseau and Dedieu, 1994).

## RESULTS AND DISCUSSION

Management of grasslands : (table 1) In the extensified the fertilisation varied according to the utilization of the fields : 60 kg of N /ha for early grazing followed by hay making and for wrapping, 30 kg for spring grazing of suckling ewes and nothing on the less productive sectors intended for the dry ewes (20% of the whole territory). In the control the nitrogen rate ranged from 70 to 110 kg / ha. A 41% reduction on nitrogen use was finally observed in the extensified. P and K applications were reduced in same ratio (-43%).

More forage supplies were made in the extensified (+ 25%). The stocks varied more from year to year in this treatment because yields were more affected by the climatic variations. The average date of cutting was later and the hay/wrapping ratio was therefore higher in the extensified; finally the cost of extra cutting was balanced by the lower expense per unit.

The more abundant phytomass production allowed a greater number of standard grazing days and an higher average daily grazing availability in the extensified. Fewer concentrates were given per ewe and the ewes were better fed during some grazing periods because they had the opportunity of sorting within grasses of different qualities.

Effects on animal performances and economics : (table 2) The productivity of the ewes is maintained in the extensified. The income per ewe is 14% higher mainly due to the higher weight of grass lamb carcasses and to their early dates of sale which allows better price. It is probably the result of the higher availability of grass that lead to heavier lambs at birth (+ 175g) and to better growth rates (+ 24g per day). The costs per ewe are lower in the extensified for two main reasons : expenditure on grasslands are 32% lower mainly because of the reduction of overall fertilisation and expenditure on sheep are reduced by 9% essentially because fewer concentrates are given to the grass lambs.

The resulting outcome is that the gross margin is 30% higher on the extensified system (135 FF per ewe) which is enough to cover the extra fixed costs caused by the larger area (50 FF per ewe).

These results confirm the findings of Brelurut et al (1995) who like us has permanently looked after covering the animal needs. Waterhouse et al (1992) working on the same type of experiment had simplified the feeding practices on animals in his extensified system and concluded that the effect of extensification is to reduce the economic output. Thus, so far, we can say that extensification of

grasslands can be positive, economically speaking if things are done in order to maintain animal productivity.

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**Table 1**

Average annual grasslands management data. 1993-95.

	Control	Extensified	Variation (%)
Nitrogen application			
(kg /ha)	88	37	- 60
(kg / farmlet)	1128	668	- 41
Phytomass production			
(kg /ha x 1000)	7.4	6.1	- 17
(kg / farmlet x 1000)	94.2	111	+ 18
Forage supplies			
(kg DM x 1000)	18.4	22.9	+ 25
Standard grazing days			
(SGD)	29669	31737	+ 6
Average daily grazing availability			
(kg DM/SGD)	2.5	2.8	+ 11
Concentrates (kg/ewe)	98	84	- 14

**Table 2**

Average annual results on animal performances and economical efficiency. 1993-95.

	Control	Extensified	Variation (%)
Lamb produced per ewe	1.14	1.15	+ 1
Weight of lamb carcass (kg)	17.4	17.7	+ 1
Price per kg (FF)	26.1	27.2	+ 4
Price per lamb (FF)	453	480	+ 6
Income (FF /ewe)	734	788	+ 7
Costs (FF/ewe)			
Sheep	214	195	- 8
Grasslands	111	75	- 32
Gross margin			
(FF /ewe)	447	582	+ 30
(FF /ha)	3099	2846	- 8
(FF /farmlet)	39672	51789	+ 31