Livestock systems in demonstration farms of the north-western Italian hills

L.M. Battaglini[*] **& A. Reyneri**[**]

* *Dipartimento Scienze Zootecniche, University of Torino, Italy*
** *Dipartimento Agronomia, Selvicoltura e Gestione del territorio, University of Torino, Italy*

Introduction

In the hills of north-western Italy, traditional livestock farming systems are generally based on continuously housed animals and on temporary meadows and cereals. Cropping techniques and animal management originate directly from the intensive agriculture of the plains, but the lower and less reliable forage crop yields and animal performance act to reduce technical efficiency and consequently farm income. Changed technical, social and economic conditions have affected the survival of traditional hill livestock farming. In this situation, there is a need to reduce costs and improve the utilisation of fodder resources by means of more extensive forage systems, and to develop model farms to encourage farmers from the traditional systems to adopt more economically and ecologically sustainable practices.

The "pilot farms"

In the framework of the EU project LEADER I, the University of Torino and the local mountain community (Alta Langa, Cuneo province) since the early 90s, have supported the transformation of two demonstration farms into pastoral farms exploiting exclusively natural and semi-natural grasslands. The aim was to improve the extension and the transfer of information by means of extension workers and farmers to other hill farms (Bianchi *et al.*,1997; Cavallero *et al.*, 1998).

Two representative farms were chosen (Table 1). The largest one is a mixed-purpose farm (MF) with dairy, sheep and cattle for cheese making and beef production; the second, mainly breeds of dairy sheep (SF).

The transformation of livestock farming

The project was set up for a 5-year period (1993-1997) with a step-by-step transformation plan, progressively introducing new techniques and management tools to facilitate their introduction in the farm system and to improve their understanding by the farmer.

The following intervention lines were formulated:
1) livestock farming system transformation through more extensive cropping techniques and rational grazing development (e.g.: improvement of sward composition and nutritive quality, adoption of more adequate equipment and shelters),
2) maintenance of efficient farms, more suitable to exploit these natural resources for the environment and landscape protection, and
3) training of human resources to obtain skilled farmers and extension workers.

Financial support was set to contribute to farm transformation costs, such as fences, drinkers, milking machines and dairy equipment. Particularly, attention was given to the analysis of the manpower contributions. In all the farm processes a daily computation of the working hours and of the family component involved in work was assessed. The farm transformation was also analysed for "quality of life", collecting the opinions of the farm family or by indexes, such as the contribution of young people to the farm work.

A complete farm balance sheet was compiled before, during and after the farm transformation. A separate economic analysis was, where possible, drawn for each farm process (e.g. milk production cost; ration and feeding costs; cheese-making cost from sheep or cow's milk).

Results

The transformation was entirely successful in the two farms, now holding themselves up as model farms (Figure 1, Tables 2 and 3).

The family farm incomes increased by 50 per cent at MF and by 7 per cent at SF. A farm holiday activity (restoration) was introduced in the SF farm, as a consequence of the reduced family work, but it was not considered in the farm balance sheet.

Table 1. Pilot farm characteristics.

	Mixed Farming		Sheep Farming	
Transformation	*Pre*	*Post*	*Pre*	*Post*
Area (ha)	62	73	20	34
Working unit (no.)	4.5		3.2	
Irrigation	None		None	
Mean slope (%)	10		20	
Cattle (no.)	74		-	
Ewes (no.)	120		120	

Table 2. Main results before and after the transformation.

	Mixed Farming		Sheep Farming	
Transformation	*Pre*	*Post*	*Pre*	*Post*
Land utilisation				
meadow (%)	46	35	18	
pasture (%)	30	41	24	86
uncultivated (%)			45	
cereal (%)	24	24	13	14
Milk production				
ewes (t y^{-1})	12.4	14.5	10.8	9.8
cows (t y^{-1})	52.1	110.4		

Conclusions

The transformation of the two farms has allowed the achievement of the following objectives: 1) new data and information on agronomic and livestock farming techniques, 2) improvement of quality of life for farmers and their families, 3) training of specialised extension staff able to apply conservation and improvement programmes in hill farming systems, and 4) suggestions for orienting agricultural and economic policy in these environments. The two demonstration farms now represent living models of livestock farming systems that several, especially the younger farmers, are following.

References

Bianchi, M., Battaglini, L.M., Fortina, R. and Galfione, S. (1997). Pilot farms: an initiative to utilise new livestock farming systems in an Upland Region of NW Italy (Piedmont-Alta Langa). In: "Livestock farming systems - More Then Food Production", Proceedings of The Fouth International Symposium on Livestock Farming Systems. EAAP Publication n.89, 101-105.

Cavallero A., Bianchi M., Battaglini L.M. and Reyneri A. (1998). The experience of demonstration farms in North-western Italian hill. FAO-CIHEAM meeting: European Cooperative network on pastures and fodder crops. Methods and tools of extension in mountain farms. Mountain grassland working group. Brazov (Rumania) 10-14 Sept.1998.

Table 3. Farm labour requirements (hours/ha/year) before and after transformation.

	Mixed Farming				Sheep Farming	
	Dairy sheep		*Cattle*		*Dairy sheep*	
Transformation	*Pre*	*Post*	*Pre*	*Post*	*Pre*	*Post*
crops	17	17	42	44	20	20
husbandry	17	15	49	47	11	7
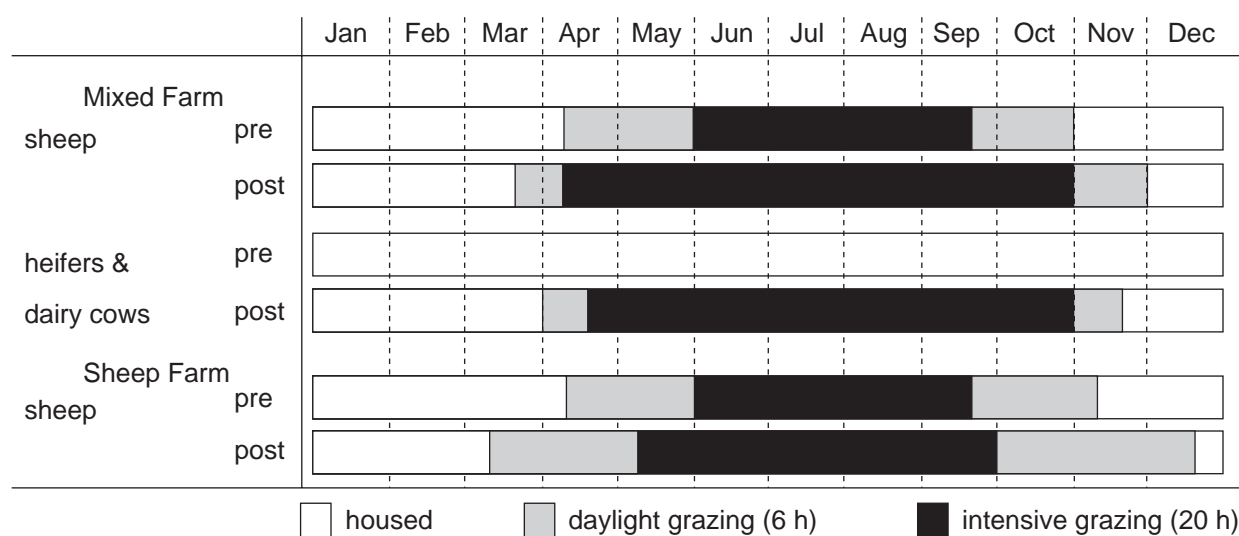
Figure 1. Grazing organization in the two demonstration farms before and after the transformation.