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Managing the summer alpine pastures in a context of recurrent droughts

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Abstract

Since 2003, livestock farming systems using summer pastures in the French Alps have faced several droughts. A survey was conducted among 35 livestock farmers and shepherds in the Vercors Massif aiming at a better understanding of their perception of drought consequences on pastoral activities and on the way they adapt alpine pastures management. Following modes of adaptation were observed: decrease in grazing pressures (stock numbers and time spent on alpine pastures), increase in the grazing area allotted to animals (new sections of grazing land) and better use of the existing resource (through shepherds' technical know-how and new equipment). We identified five main types of adaptation, depending on the initial level of forage resources used, both on the alpine pastures and on the farmstead. Pastoral management requires flexibility, particularly since other environmental and heritage issues as well as constraints (predation...) also have to be taken into account.

Keywords: alpine pasture, drought, pastoral farming, adaptation.

Introduction

Since 2003, a part of the French Alps has been subjected to a series of droughts of unusual severity. Often associated with heat waves, the droughts have resulted in a decrease in the pastoral resources available for animal feed stocks, sometimes going as far as to jeopardise the renewal of resource if practices are not adjusted. The livestock farmers and shepherds had therefore to react to these droughts (Nettier *et al.*, 2011). In this paper, we look at the manner in which farming practices have been modified on alpine pastures, and propose a typology to characterise the diversity of adaptation modes.

Materials and methods

Our study concerns 17 areas of alpine pastures in the Vercors massif (French Prealps), chosen for the diverse ways in which they are used: sheep, cattle, or mixed grazing; permanent or non-permanent shepherding; collective or individual herds; local stockbreeders or transhumant farmers of the Mediterranean regions.

Between 2008 and 2010, 35 livestock farmers and shepherds, users of the 17 alpine pastures were surveyed (semi-directive interviews) with a view to gaining insights into their perception of the droughts and the way in which they have adapted their management practices: grazing technique, configuration of the alpine pastures (Girard *et al.*, 2001) and coordination in the use of alpine pastures and other areas near the farm.

Results

We established a typology based on expert knowledge, using criteria such as availability of forage resources, changes in grazing management practices and transfers from alpine pastures to the farm area. We identified five types of adaptation to drought (table 1).

Table 1: Types of adaptation in management of alpine pastures

Type	Number of alpine pastures	Availability of forage resources according to livestock farmers		Adaptation of grazing management practices	Coordination in use of farm and alpine pastures: transfer of grazing pressure from alpine pastures to farm
		in a 'normal year'	in a dry year		
1	4	Complete consumption of resource	Resource insufficient to feed herd	Yes	Structural transfer as emergency measure from 2003
2	3	A little surplus	Not quite enough to ensure the renewal of resource for the following years	Yes	Structural transfer, from 2004 or 2005
3	4	A little surplus	Not quite enough to ensure the renewal of resource	Yes	Only in the driest years
4	5	Surplus	Almost completely used, with renewal of resource not compromised	Yes	No adaptation at this level
5	1	Surplus	Resource surplus	No	As and when required, reverse transfer (from farm to alpine pastures) in dry years

Before the drought years, the management of alpine pastures varied from completely grazed areas to standing herbage on reserve sectors at the end of the summer. These contrasted initial situations were confirmed by comparing the needs of the herds with the estimates of forage resources made during pastoral assessment. They led to different types of adaptations to the drought. Without reserve sectors, Type-1 farmers adopted emergency measures as early as the drought of 2003, and then modified their operations in anticipation of future droughts. Thanks to a little standing herbage, Type-2 farms did not need to adopt emergency measures but nevertheless decreased the pressure on the alpine pastures in the following years so as to avoid deterioration of the resource. In a similar situation, the Type-3 farmers, who had fewer possibilities for grazing on their farms in summer, made temporary adjustments during the driest years. For Type-4 farmers, a simple adjustment in grazing management was made, given that the alpine grazing resources seemed sufficient, even in dry years. As for the Type-5 alpine pasture, which is oversized in relation to needs, it serves as stand-by resources for farms in dry years.

An adaptation of grazing management is the first measure implemented on all the alpine pasture areas where there is almost no surplus, or a lack in forage resources in a dry year (types 1 to 4). Shepherds use their know-how: (1) on a daily basis, by choosing grazing sectors in function of the weather, and by exploring remote zones; (2) during the mountain pasture season, by grazing each range allotment at the appropriate time; and (3) from one year to the next, by preserving the reserve sectors during wet years and by fertilising (night paddocks) less productive environments. In case of flexibility at the farming-system level, farmers can also adapt the way in which the use of alpine pastures is coordinated with that of the farm (transfer up to 35% of Livestock Unit Grazing Days): by temporary (type 3) or structural decreases (types 1 and 2) in the time spent on alpine pastures (it concerns 9 of the 17 alpine pastures studied; animals are brought down early or taken up late) and/or in the herd numbers taken up (only 4 alpine pastures).

In addition, in the study sample, during the 2003-2010 period, improvements were observed in the configuration of six alpine pastures, aimed at increasing the resource or at consuming it better (extending the pasture area, improving water reserves, or constructing huts on distant

range allotments). Although such developments are more frequently observed in types 1 and 2, they depend mainly on the opportunities available to farmers (areas available, subsidies).

Discussion and conclusion

The measures adopted depend on the grazing management before 2003 (presence or not of reserve sectors, for example), on the capacity of the farmers to preserve stand-by resources on their farms in summer, but also on the opportunities of improving grazing areas. Livestock farming systems must also deal with other hazards (volatile prices of farm inputs and products, uncertainty about subsidies, predation by wolves, etc.). The shepherd management results from a compromise between different concerns (sectors vulnerable to predators, sectors subject to environmental issues with late grazing, etc.). Following the example of Darnhofer *et al.* (2010), we show that being able to demonstrate considerable flexibility is a necessary asset for achieving sustainability over the medium term.

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References

- Darnhofer I., Bellon S., Dedieu B., Milestad R. (2010) Adaptiveness to enhance the sustainability of farming systems. A review. *Agriculture for Sustainable Development* 30, 545-555.
- Girard N., Bellon S., Hubert B., Lardon S., Moulin C.H., Osty P.L. (2001) Categorising combinations of farmers' land use practices: an approach based on examples of sheep farms in the south of France. *Agronomie* 21, 435-459.
- Nettier B., Dobremez L., Coussy J.L., Romagny T. (2011) Attitudes of livestock farmers and sensitivity of livestock farming systems to drought conditions in the French Alps. *Journal of Alpine Research* 98-4, <http://rga.revues.org/index1307.html>.