

# “Alpine Pasture-Farms System”: a concept to analyse the management of alpine pastures

The issue of adaptation to climate change on alpine pastures leads to consider as a whole an alpine pasture and the different farms using it, and to analyse the interactions between alpine pasture and farms.

Baptiste Nettier<sup>1,2</sup>, Laurent Dobremez<sup>1</sup>, Gilles Brunshwig<sup>2</sup>

1: Irstea – UR DTM – 2: VetAgro Sup & Inra – UMR Herbivores

## I. Introduction

- Alpine pastures represent the main forage resource during summer for many livestock farming systems and appear especially vulnerable to climate change.
- Management on alpine pastures requires to be adapted, which may have repercussions on the whole farms. Conversely adaptation to climate change on farms may have consequences on alpine pastures. Yet few research consider the interactions between alpine pastures and farms.
- Considering the specific issues on alpine pastures, we propose to focus on the system made up of the alpine pasture and the different farms using it : the “**Alpine Pasture-Farms System**” (APFS).

## II. Why an alpine pasture-farms system is a very specific livestock farming system

TABLE 1: Specificities of APFS

The specific pedoclimatic context and land status of alpine pastures, and the collective organisation of summer grazing, may have consequences on the whole alpine pasture-farms system.

	Every alpine pasture-farms systems	Collective alpine pasture-farms system
<b>Work organisation</b>	Specialisation (shepherd), planned tasks, due to the spatial and geographic isolation of alpine pasture from the rest of the farms.	Maintenance duties, animal drafting... : the alpine pasture sets a work scheduling, to the farms.
<b>Herds</b>	Livestock management (mating time, batching...) to be decided according to the potentiality of alpine pasture.	Mix up of herds and health management. Compromise to be made in livestock management (mating times...).
<b>Resources</b>	Extreme diversity : altitudinal layering, geographic distance between farm and alpine pasture.	Geographic distance increased, diversity of systems and management types.
<b>Management</b>	Articulation between individual and “common” areas: - Non pastoral issues and users to be included in management. - Issue of the preservation of “commons”.	Coordination between farms to be assured.

## III. Application : analysis of the flexibility [1] of a diversified sample of alpine pasture-farms systems

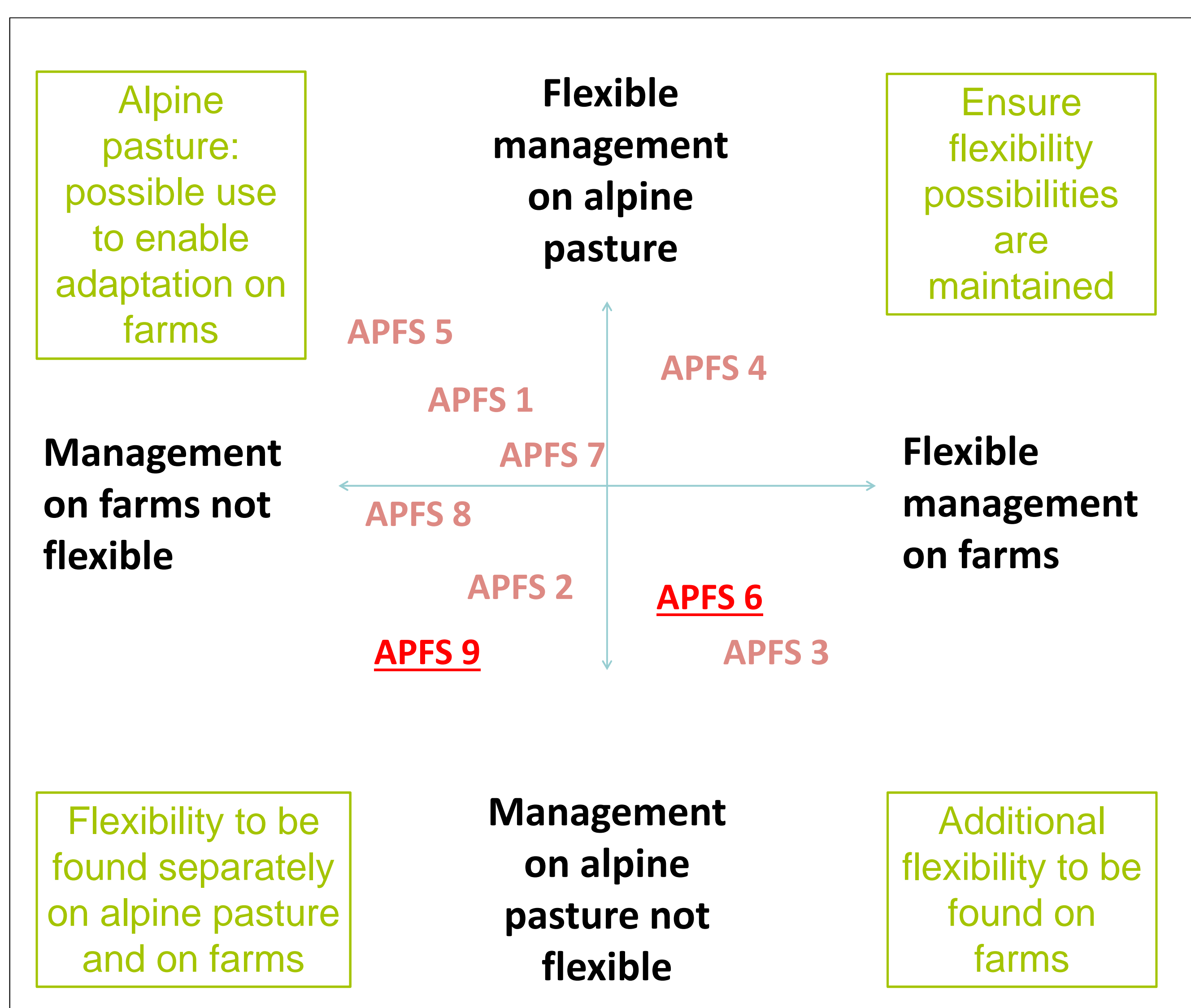


FIG.1: Through a participatory process involving local experts in the Ecrins National Park (“Alpages Sentinelles” network), 9 APFS were positioned on a graph according to their relative level of flexibility on alpine pastures and on farms.

The green boxes list ideas for improving flexibility.

TABLE 2: Description and flexibility of 2 APFS

	APFS 9	APFS 6
<b>Description of the APFS</b>	5 sheep farms in a mountain village, that use a local alpine pasture. Salaried shepherd on alpine pasture.	3 pastoral sheep farms in South-East of France, that transhume to a distant alpine pasture. Farmers take turns on alpine pasture.
<b>Flexibility on farms</b>	-- Long winters, important slopes: mechanised areas reserved for hay, sloppy rangelands for grazing.	+ Many adjustments (cf. Mediterranean climatic variability): flocks management, areas used, grazing schedule.
<b>Flexibility on alpine pasture</b>	-- Size of the different range allotment reduced, buffer areas limited : grazing schedule very rigid.	- Abundant pastoral resource, but many constraints limit and rigidify its use (late vegetation, high elevation, predation...)
<b>Adjustments observed at interaction between alpine pastures and farms</b>	Few evolutions of the management on farms and on alpine pasture. ↳ No flexibility on alpine pasture, or on farms, autonomous management of the different entities.	Going up to alpine pasture delayed since 2005 , reorganization on farms, with new pastoral areas grazed (ski slopes, firebreaks...) ↳ Lack of flexibility on alpine pasture. Structural adjustment made to preserve it on long-term. Annual adjustments made only on the farms.

## Conclusion

- There can be important sources of flexibility at the interaction between alpine pasture and farms, and between the different farms.
- Taking into account the specificities of the alpine pasture-farms system improves our understanding of the interactions between an alpine pasture and the different farms that use it.
- This study may be of interest to all agropastoral systems using a diversity of resources, articulating individual and collective management and using both common and individual areas.

[1] Astigarra L. et Ingrand S., 2011. Production flexibility in extensive beef farming systems. Ecology & Society, 16-1.