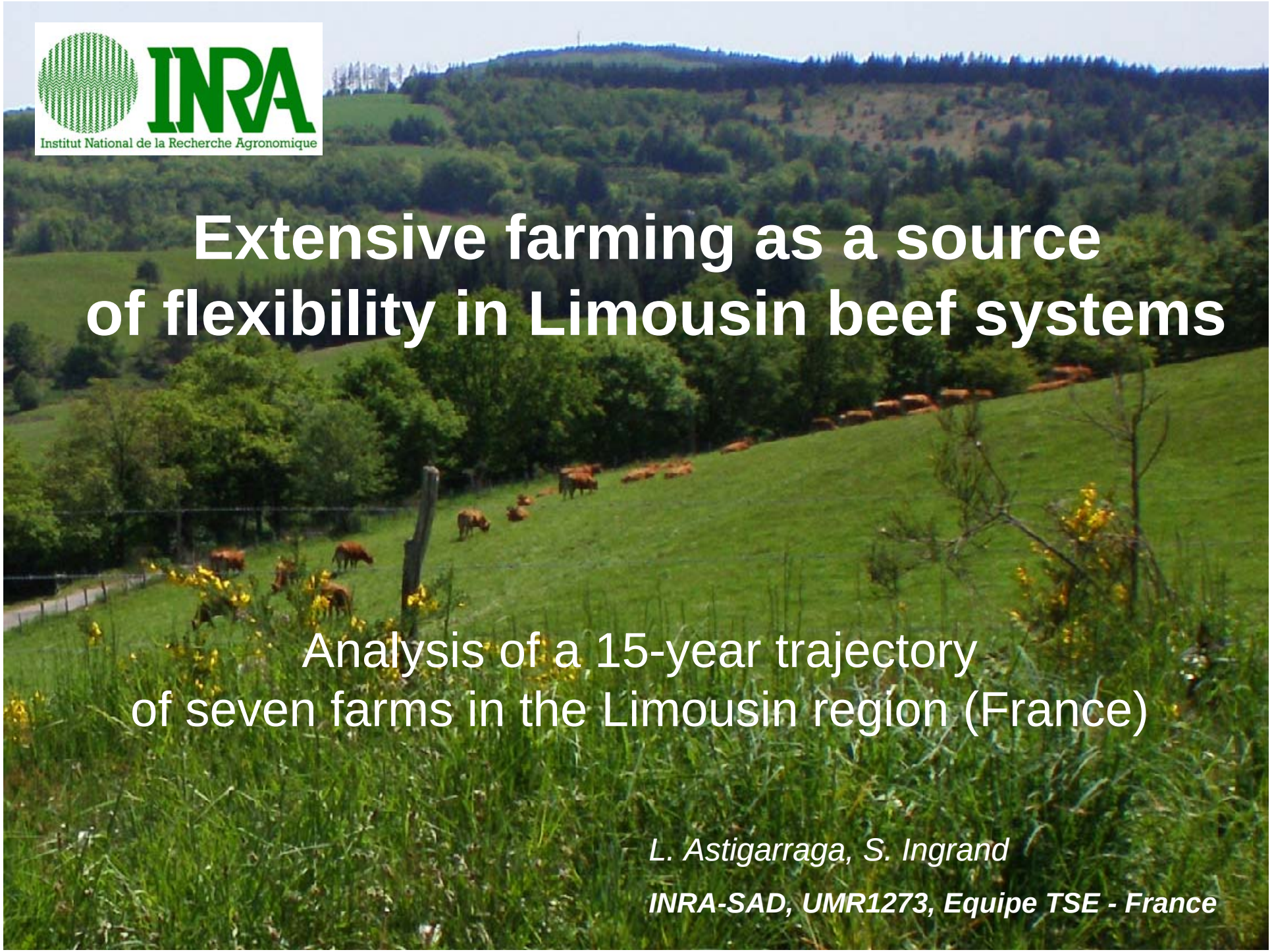

Extensive farming as a source of flexibility in Limousin beef systems

Analysis of a 15-year trajectory of seven farms in the Limousin region (France)

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Introduction

- During the last 15-years, European agriculture has been confronted with unprecedented change. To remain competitive, farmers have had to deal with increased levels of foreign competition, revised regulations, and rapid market changes.

- In order to face changing conditions, flexibility is often the system's response to deal with uncertainty. The concept of flexibility is frequently used for the analysis of manufacture companies facing change, but as far as we know, in agricultural research the issue of flexibility has not received much attention as a separate issue.

- In the research program "Farm flexibility confronted with beef crises" (Ingrand et al. 2004), flexibility is defined as:

  ⇨ ***the capacity of the livestock system to adjust quickly to a wide range of economic, technical, marketing and climatic constraints, whilst allowing the farmer to cope with his production plan in the medium term, or even the long term***

- Leeuw and Volberda (1996) defined flexibility in terms of properties of control:
  - *Flexibility is the degree to which an organization possesses a variety of actual and potential procedures, and the rapidity by which it can implement these procedures, in order to improve the controllability of the environment*

Hypothesis

⇨Extensive farming system possesses the capacity to respond effectively and quickly to the variations of the environment keeping the integrity of the system by changing internally or externally

Objective

- The aim of this work is to study the degree of flexibility allowed by the extensive conditions of production face to the variations of the environment (market variations and climate fluctuations)

Methodology

- The study used a case-based methodology in which 7 beef farming systems were analysed in depth.

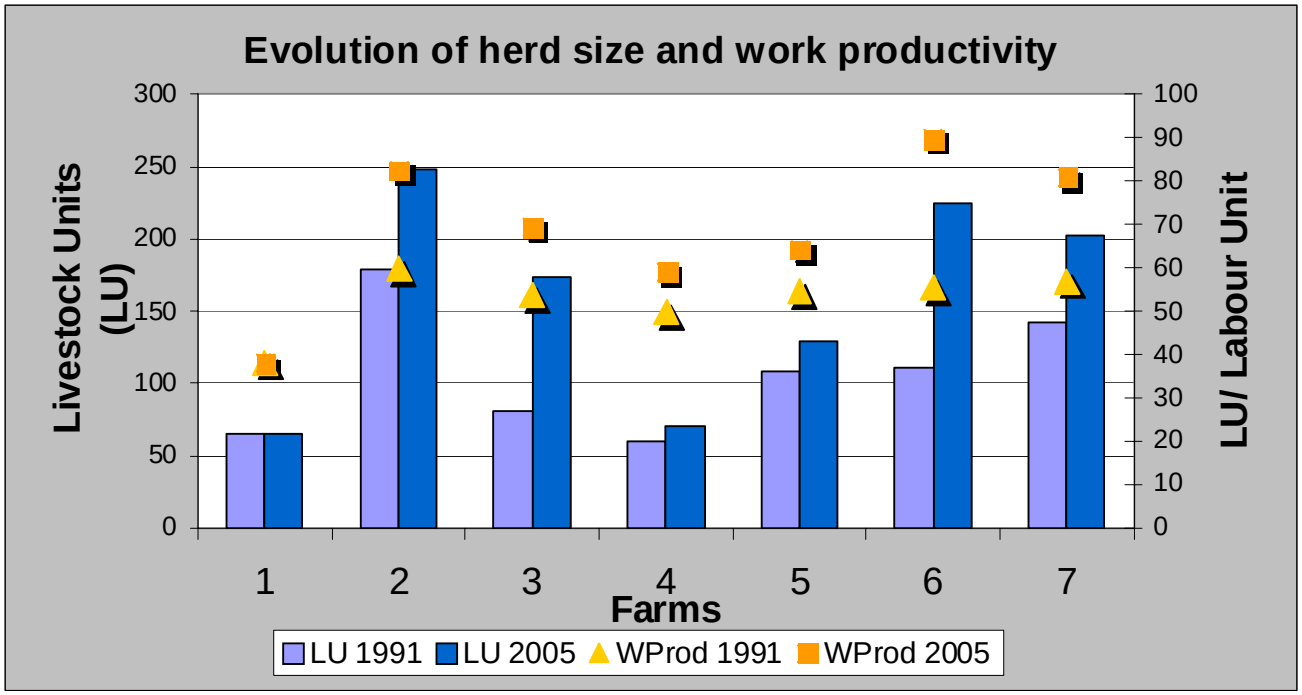
  The choice of the farms was not random, since these farms have been studied 15 years ago, but were chosen because of their extensive conditions of production (< 1 LU/ha)

- Data collection was based on 4 interviews using a semi-structured questionnaire and on the analysis of the productive and economical results for 15-year period

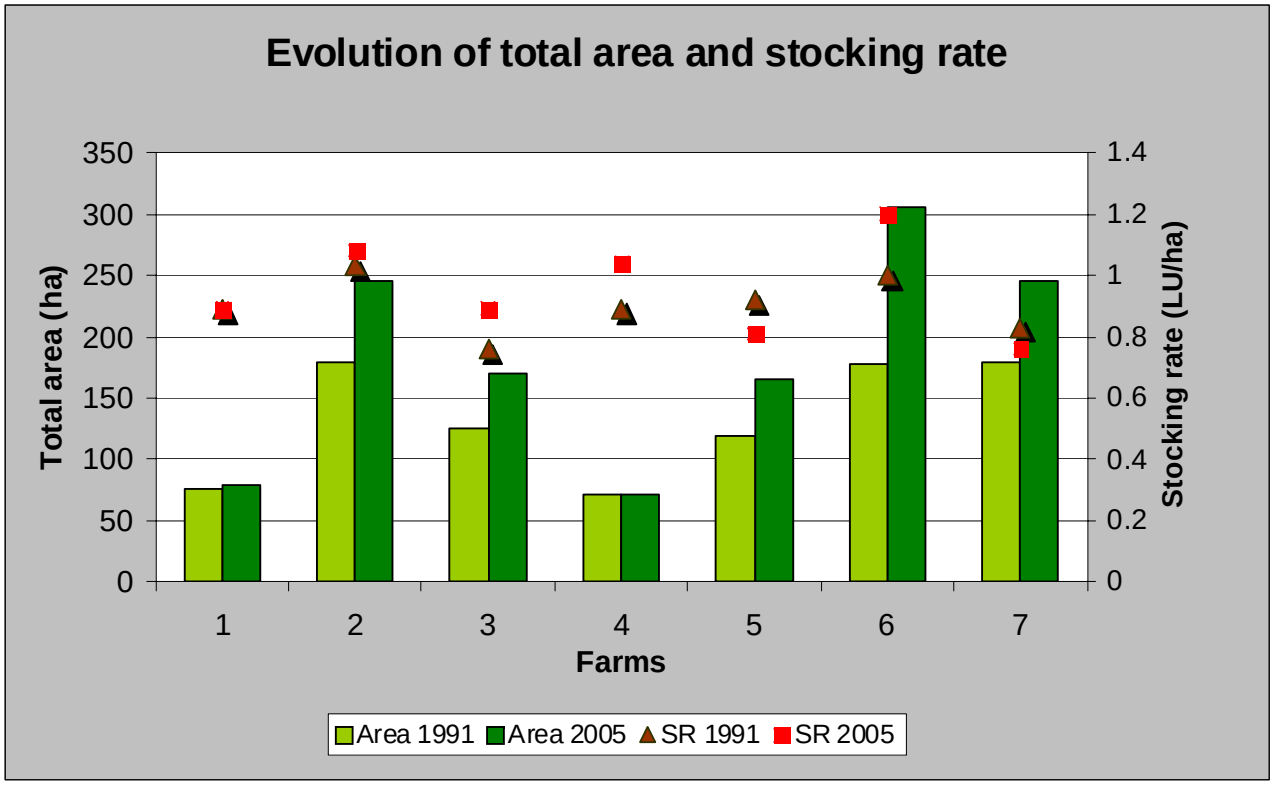
The Limousin region


The principal breed for beef production
in this area is the Limousin

Main evolution of the 7 farms



In order to maintain their income in spite of the continuous price decrease of cattle, farmers had to increase the productivity of their work (+ 20% of LU/LabourUnit) by significantly increasing the size of their herds (+ 45% LU)



Herd increase was possible by increasing the area; the margin of intensification being limited in these regions (+ 30% area and + 5% LU/ha on average)

Extra area allowed an enlarged

Product mix and volume flexibility

Product mix

Beef categories	Beef products	
Beef cows	Fat cow	
Females 0 - 3 years	F 0-1	"Broutarde d'Italie" (animal sold just after weaning)
	F 1-2	"Génisse de Saint Etienne"
		"Génisse de Lyon"
		for reproduction for "Le veau sous la mère" system
	F 2-3	pregnant
Males 0 -1 year	M 0 -1	"Broutard d'Italie" (animal sold just after weaning)

The female in the Limousine system is the category that allows major product differentiation, and the male is predominantly sold after weaning for the Italian market

Average prices of the females sold for reproduction or for fattening

	F 2-3 (pregnant)	F 1-2 (for reprod.)	F 1-2 (fattened)	F 0 -1 (for fattening)
Average price (Euros 2005)	1811	1522	1470	767

The female Limousine sold for reproduction or fattened (for slaughtering), improves the gross margin/female in comparison with the female sold for the Italian market.

Volume flexibility by ‘delaying product differentiation’

For the same product mix offer to the market, ‘delaying product differentiation’ is a strategy that allows high variety and quick response time (Gupta and Benjaafar, 2004)

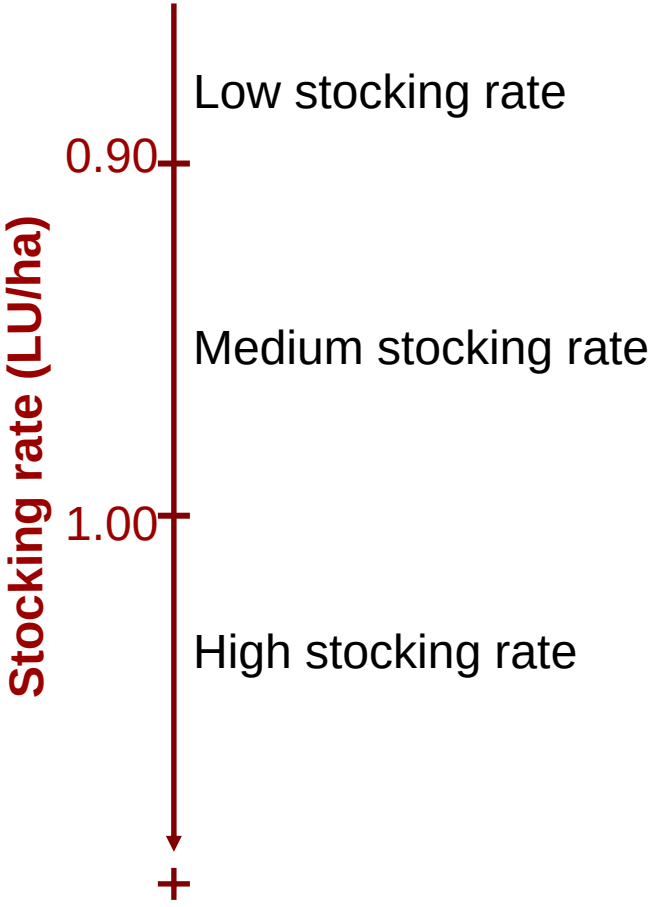
⇨ Limousin females sold for reproduction or fattened makes a ‘delayed differentiation’ possible:

following the demand and prices, the 1 year old females are differentiated as fattened products or heifers for reproduction

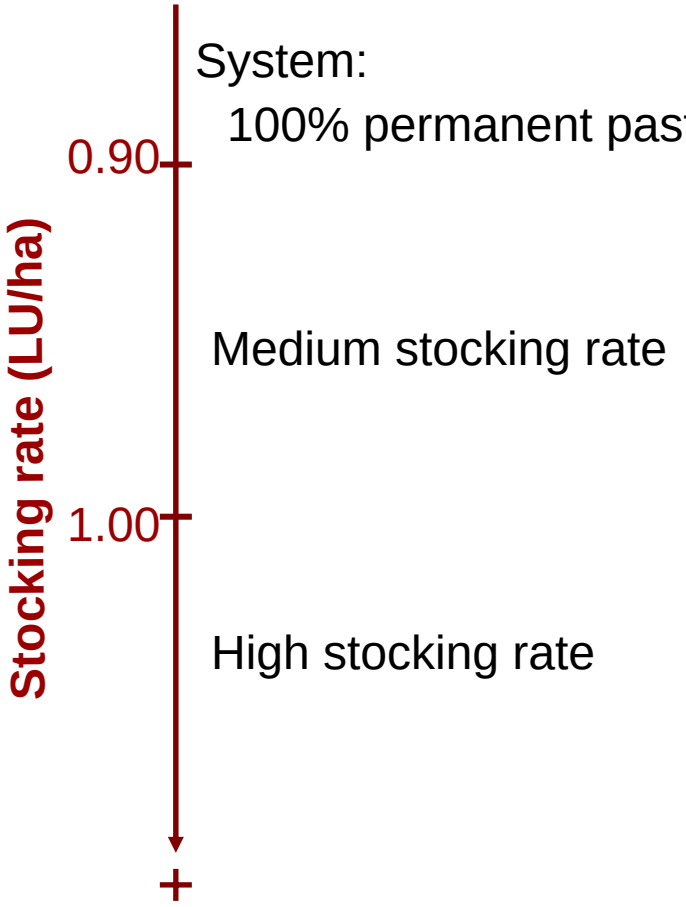
Responses to the consecutive droughts of 2003 and 2005

As the taxonomy proposed by Correa and Slack (1996), for unplanned change, the drought appears for farmers as an environment disturbance that risks to become ‘frequent’, ‘unpredictable’ and ‘drastic’ (the rate of unplanned change)

Some examples of responses used as solutions to deal with drought



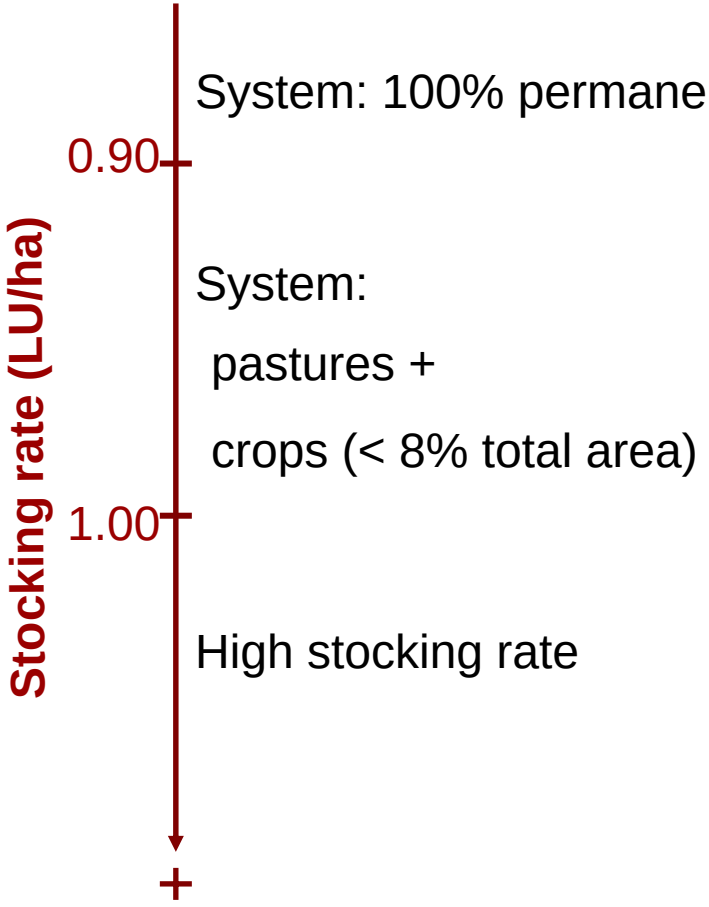
Some examples of responses used as solutions to deal with drought



No changes facing droughts

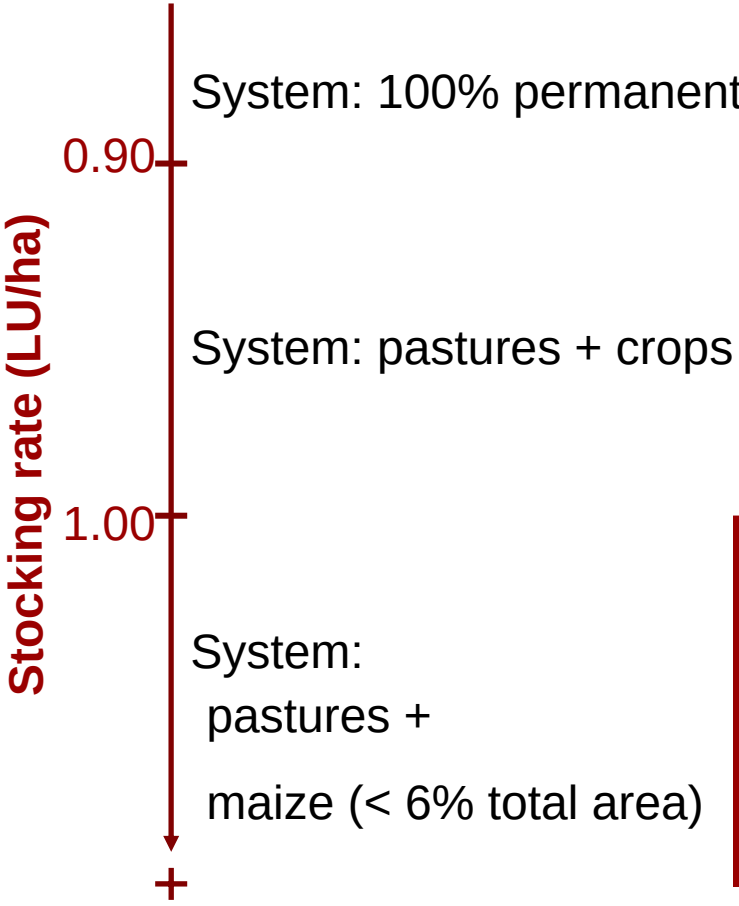
⇨ 'safe level' of carrying capacity (Steady-state?)

Some examples of responses used as solutions to deal with drought



	Drought 2003	Drought 2005
Reactive response	Use of stocked hay	Buying hay
Proactive response	Decrease of crop area (8 →6%)	No response

Some examples of responses used as solutions to deal with drought



	Drought 2003	Drought 2005
Reactive response	Use of stocked hay	Use of stocked hay
Proactive response	No response	Area of maize for silage (4%)

Facing the same stimuli, the system response may vary according to a certain threshold level (as perceived by the manager) (Leeuw and Volberda, 1996) :

- if this threshold level is not reached, the management acts prudently instead of decisively and prefer to implement change slowly and continuously

- if this threshold level is reached, the management seeks to limit the variability from the environment by developing preventive methods and therefore reducing uncertainty as opposed to invest in quick corrective methods

Concluding remarks

- ✓ To analyze flexibility we should adopt a system approach within a specific context

- ✓ From the cases studied, Limousin extensive farming systems seem to have actual and potential procedures to allocate to flexibility-need:
  - a flexible product mix that can vary with the demand
  - an area that acts as a buffer system in face to climate changes

- ✓ Finally, additional research is required of the role of the human element, including the particularities of the farm organization within the flexibility of the overall system