French sheep-for-meat production: state of the art and perspectives for sustainable farming systems.

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Referee of ADEME: Trevisiol A. - Service of Agriculture and Forest

INRA SCIENCE & IMPACT

ADEME Agence de l'Environnement et de la Maîtrise de l'Energie

VetAgro Sup Campus agronomique de Clermont

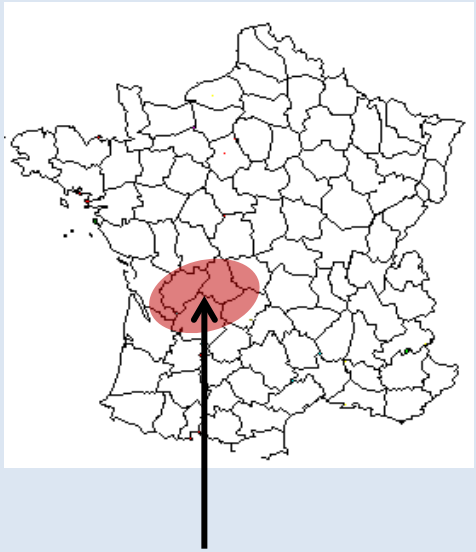
Over the last 30 years, French sheep-for meat production ↘ by 50%

Nowadays, self-sufficiency of 50 %

Remaining production systems are

- still below international competitivness
- threatened by future economic and climatic contexts
- Pointed out for some of their environmental impacts

To maintain French Sheep-for-meat production systems, it's clearly needed **to identify** what systems can face actual and future challenges



Montmorrillon

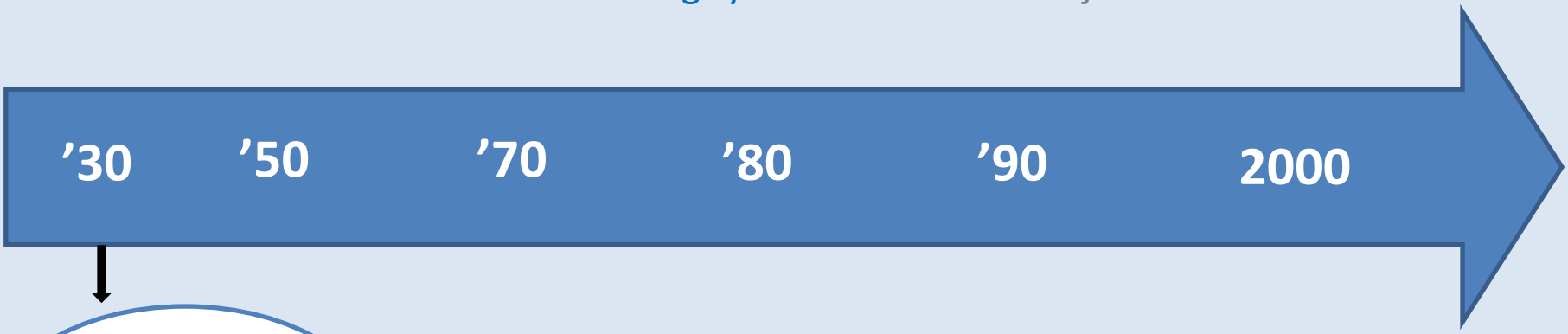
Evolution analysis
of french sheep-for-meat
production systems
in plainland areas

↓

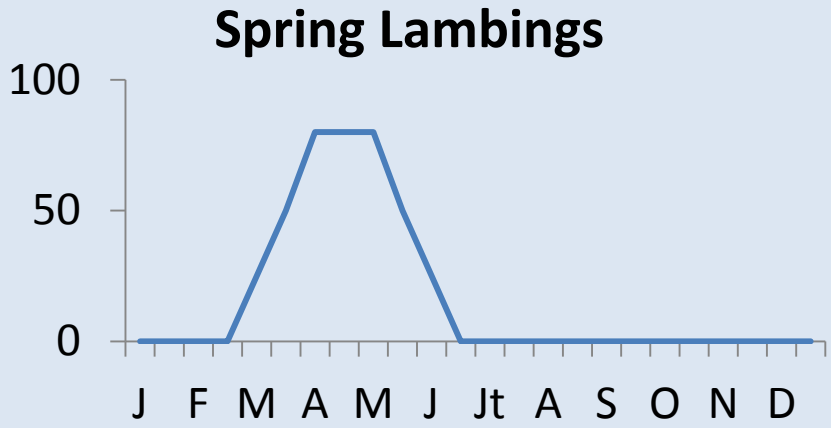
Identification of drivers
&
Expected evolutions

↓

Defining objectives for
sustainable farming
systems

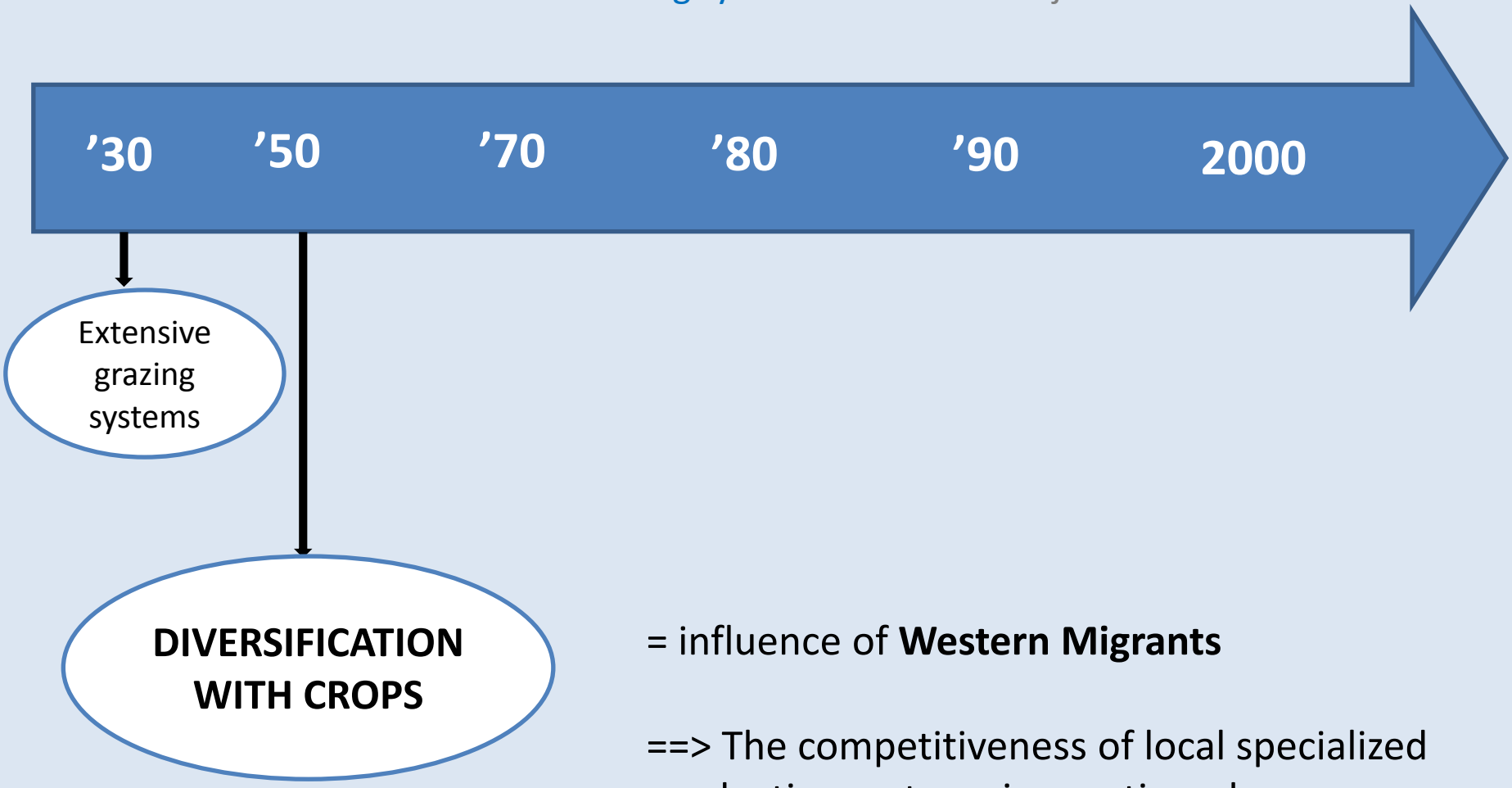


EXTENSIVE GRAZING SYSTEMS



➔ Systems with low labour and inputs needs

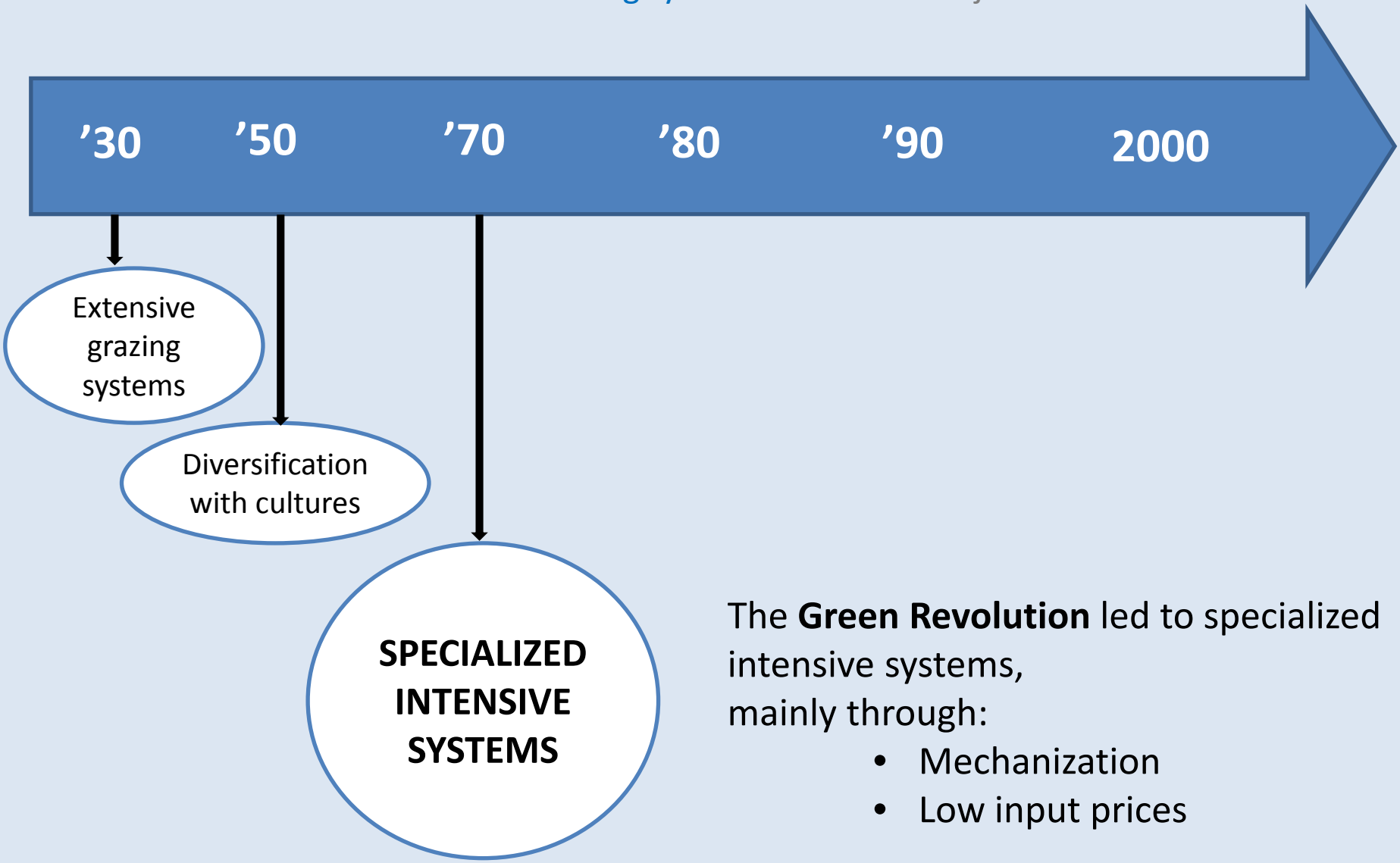
(JEAN, 1986)



= influence of **Western Migrants**

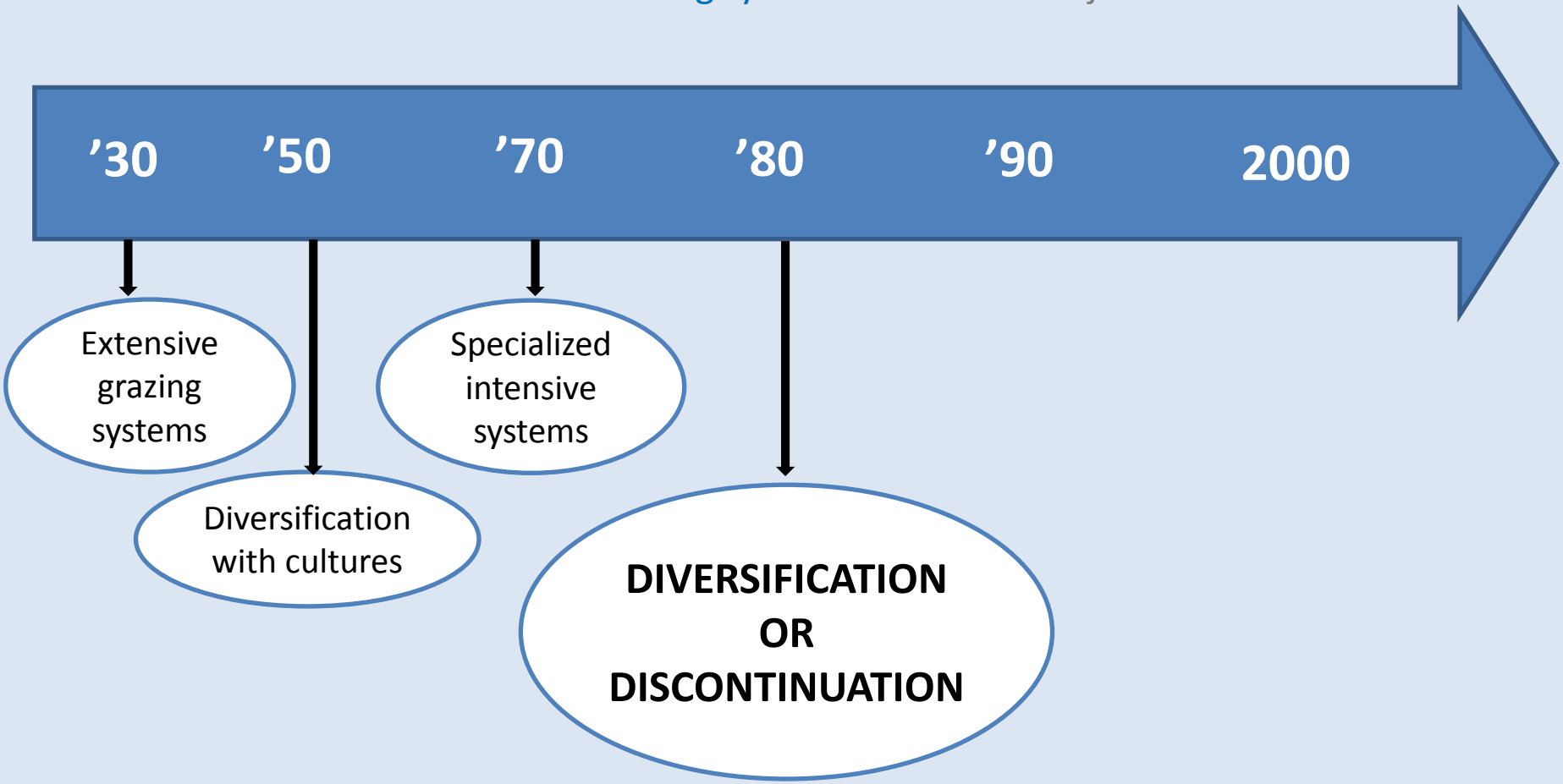
==> The competitiveness of local specialized production systems is questioned.

(JEAN, 1986)



The **Green Revolution** led to specialized intensive systems,
mainly through:

- Mechanization
- Low input prices

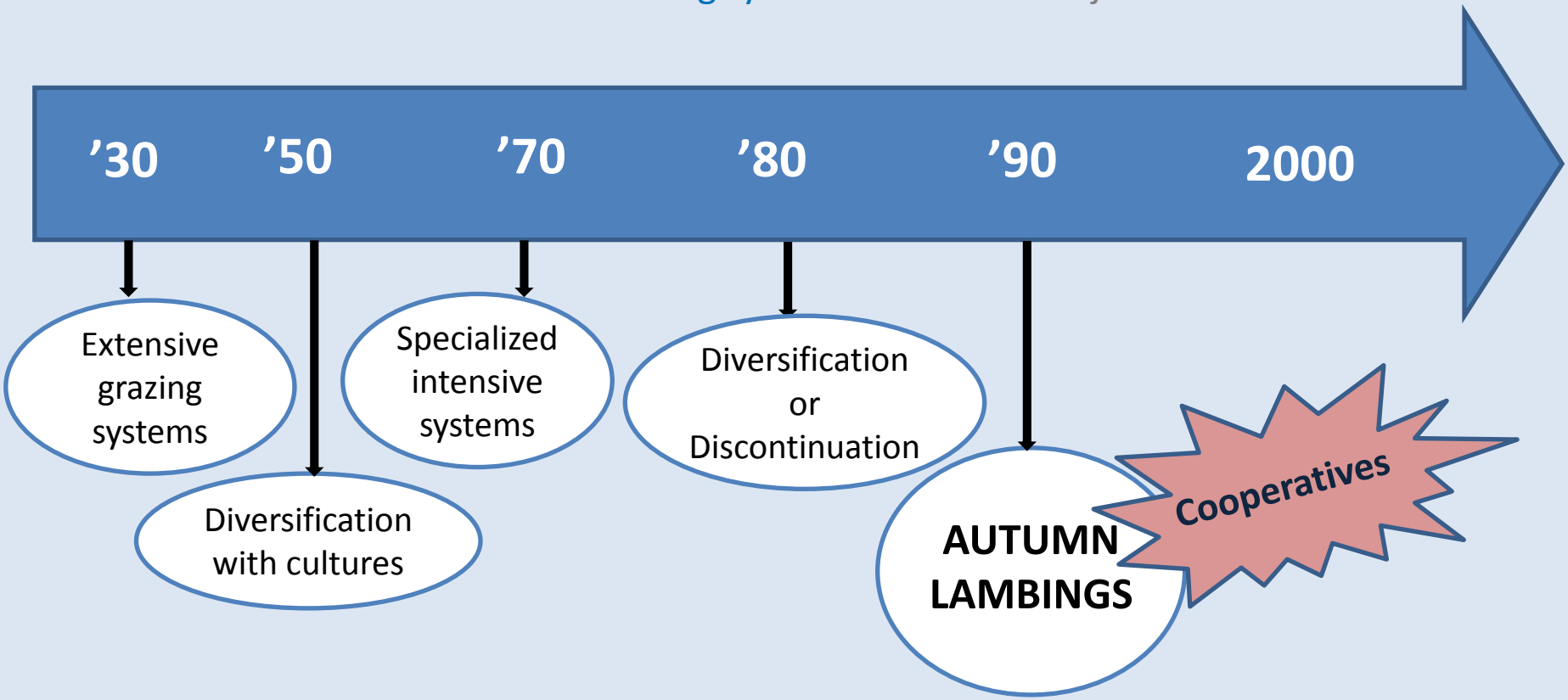


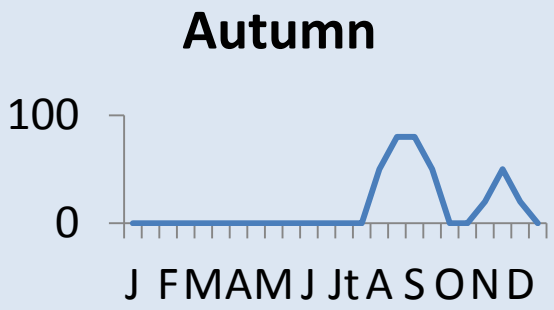
More **liberal CAP** led to

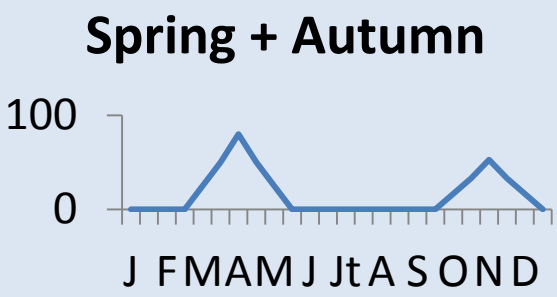
➔ a **rise** in **imports** of sheep meat: **20 ➔ 50 %** of national selfsufficiency

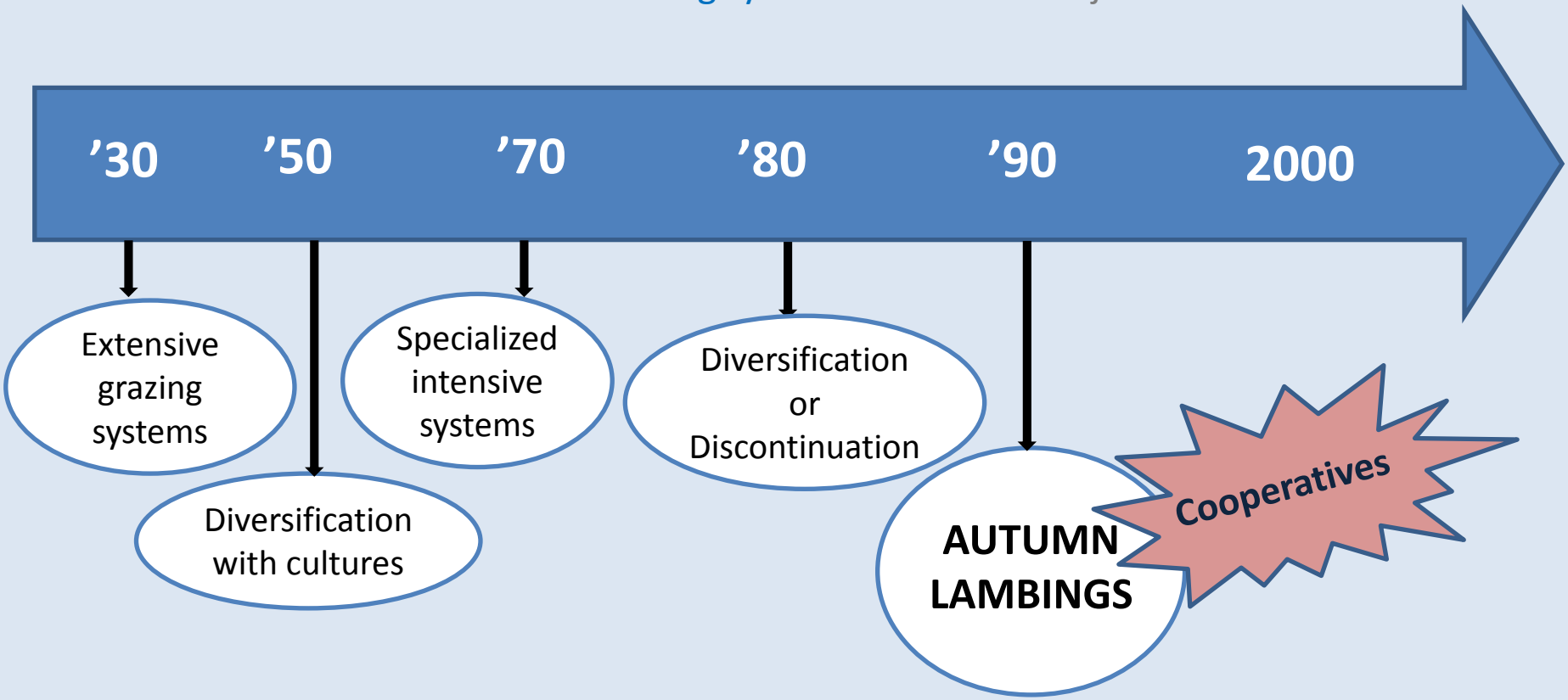
➔ A **decrease** of domestic **prices** of **40%** (Benoit and al., 1991)

➔ Specialized intensive sheep systems **are no longer competitive**

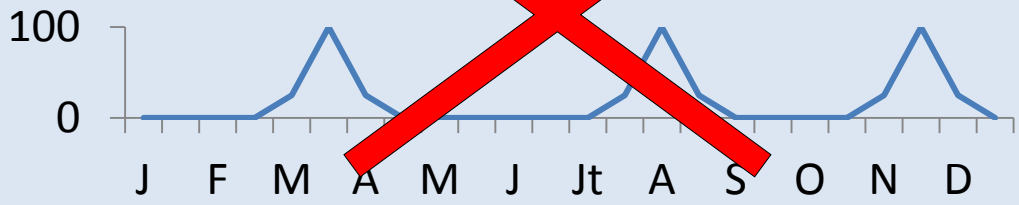

'30
'50
'70
'80
'90
2000
Extensive grazing systems
Diversification with cultures
Specialized intensive systems
Diversification or Discontinuation
AUTUMN LAMBINGS
Cooperatives


Autumn
100
0
J F M A M J J t A S O N D

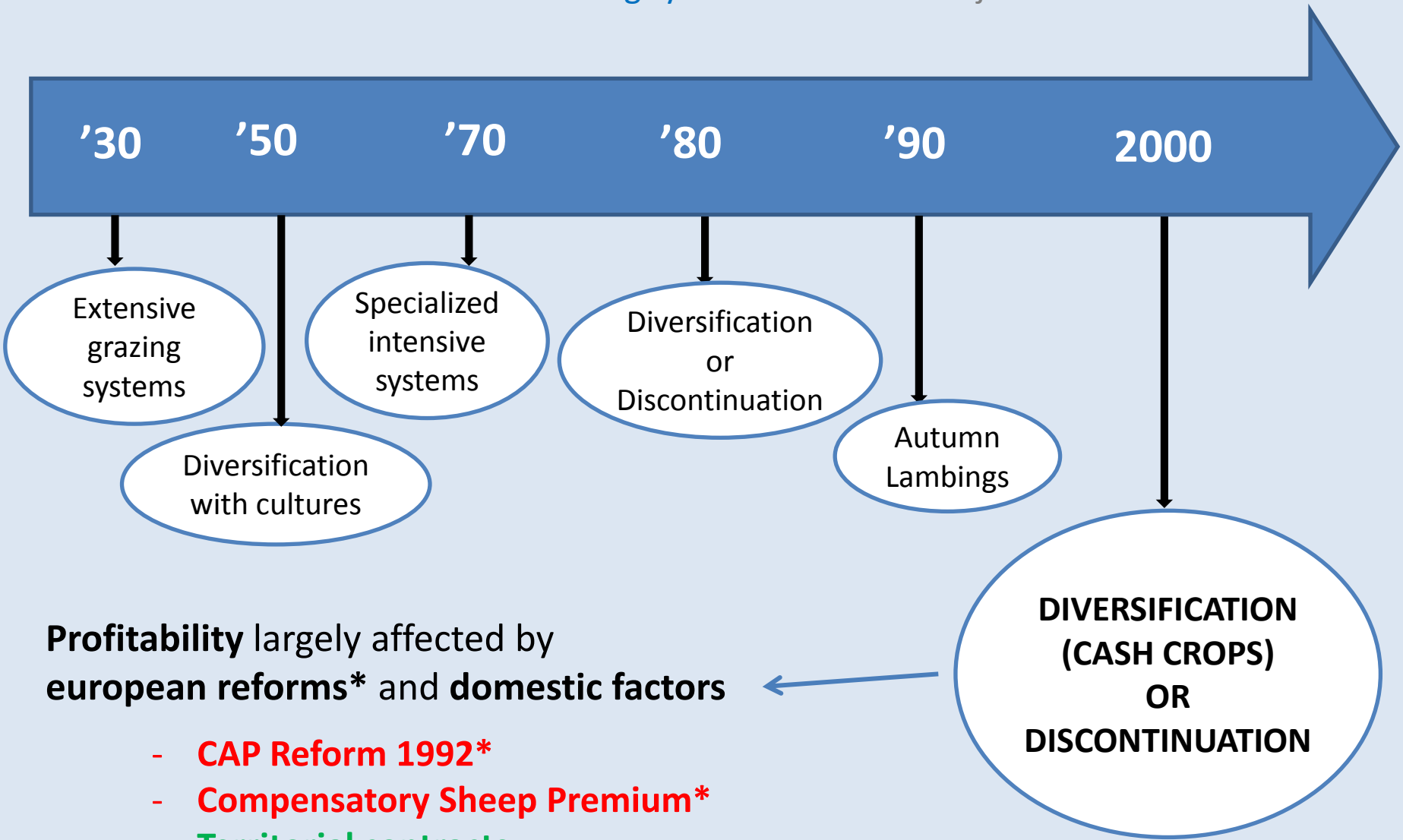

Spring + Autumn
100
0
J F M A M J J t A S O N D



Accelerated Systems: 3 lambs/ewe over 2 years



Evolution of farming systems – Drivers - Objectives



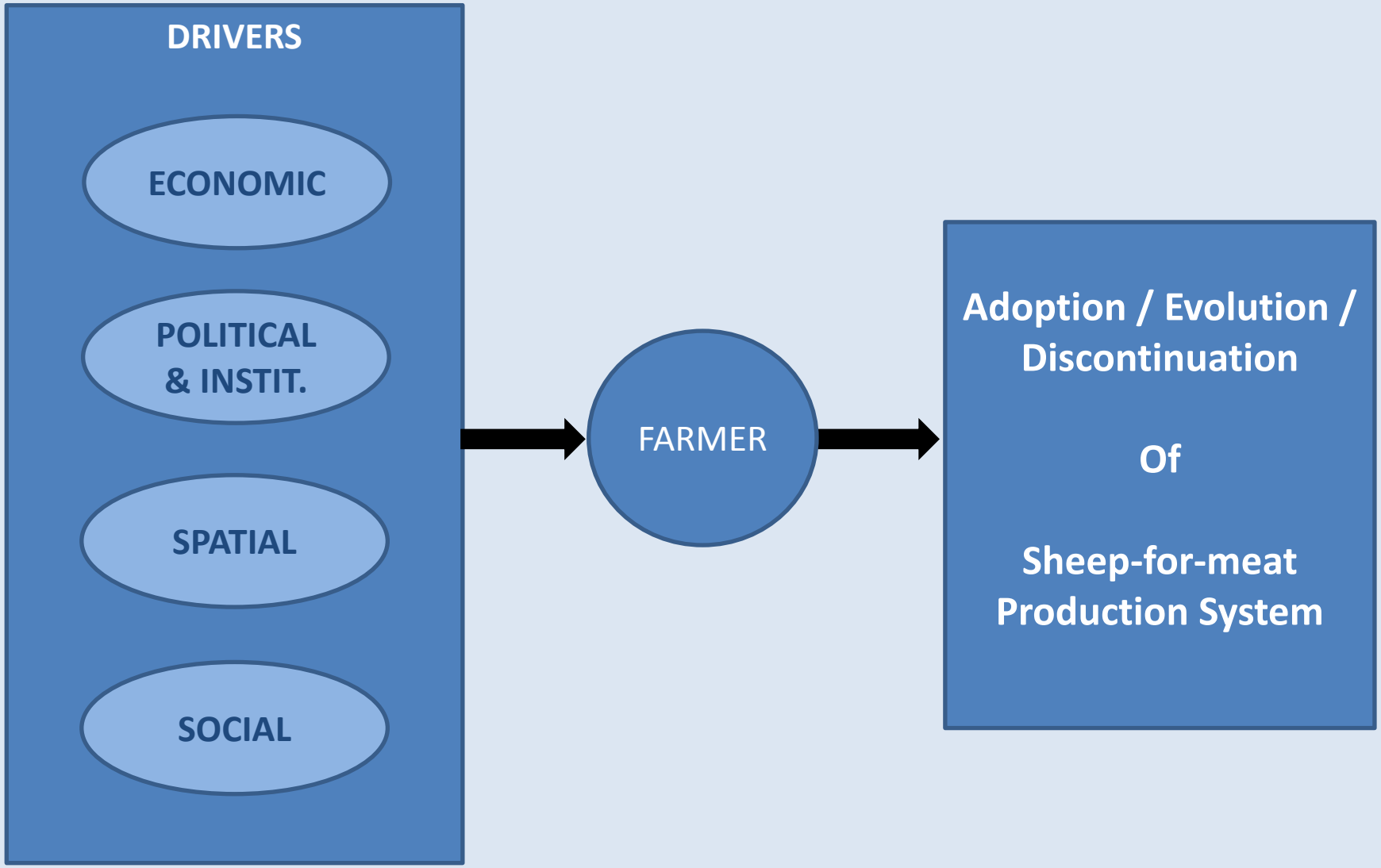
Profitability largely affected by **european reforms*** and **domestic factors**

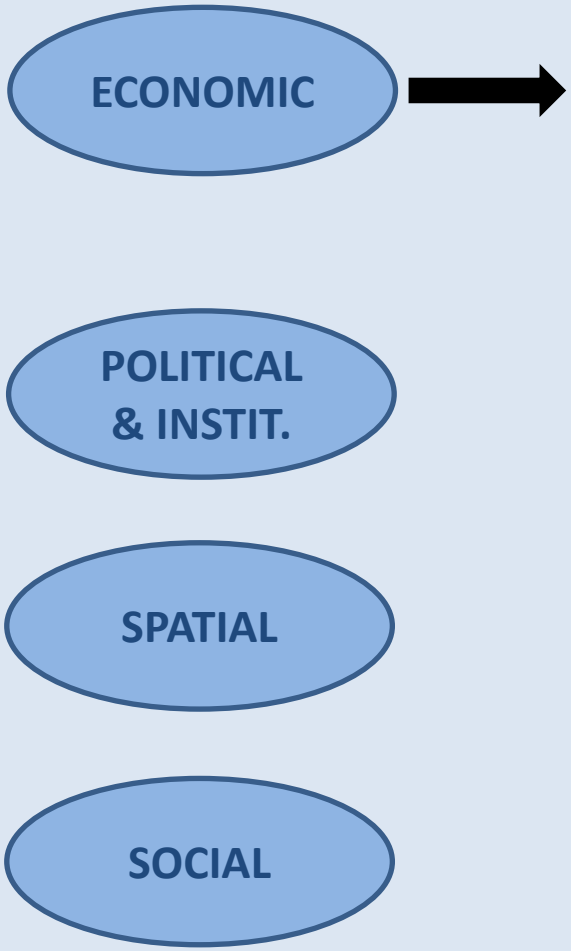
- **CAP Reform 1992***
- **Compensatory Sheep Premium***
- **Territorial contracts**
- **« Plan Barnier »**

Other characteristics of evolution (1987 – 2010)

- Total Agricultural Area: **+ 66%** (90 ➔ 150 ha)
- Number of ewes : **+ 42%** (480 ➔ 680 ewes)
- Labour productivity**:** **+ 35 %** equLU/worker

(sample of 12-25 farms , INRA network)


DRIVERS
ECONOMIC
POLITICAL & INSTIT.
SPATIAL
SOCIAL
FARMER
Adoption / Evolution / Discontinuation
Of
Sheep-for-meat Production System



SCALE ECONOMIES:

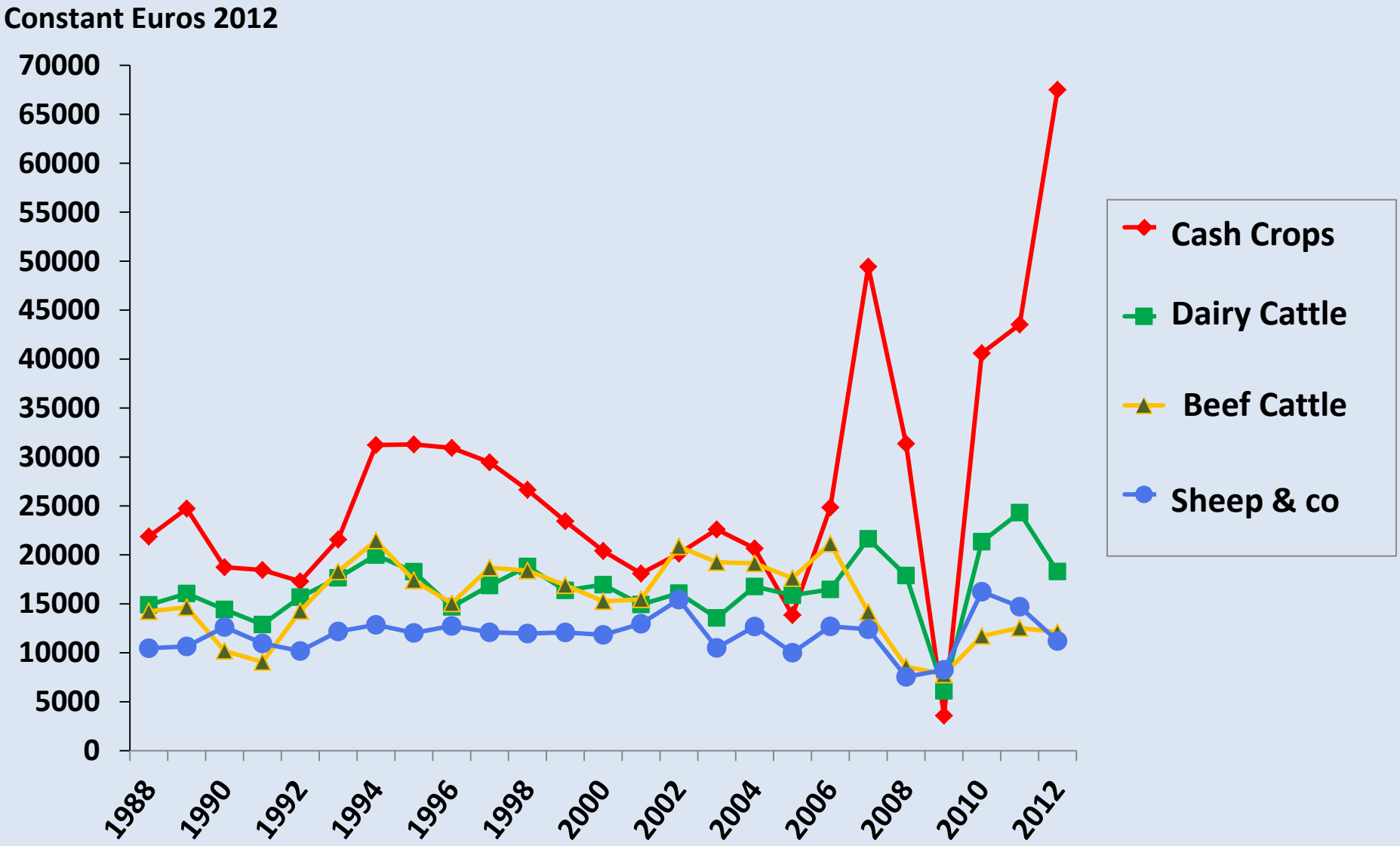
cost advantages that enterprises obtain due to a higher size of production,
because cost per unit of output decreased as fixed costs are spread out over more units of output.

SCOPE ECONOMIES:

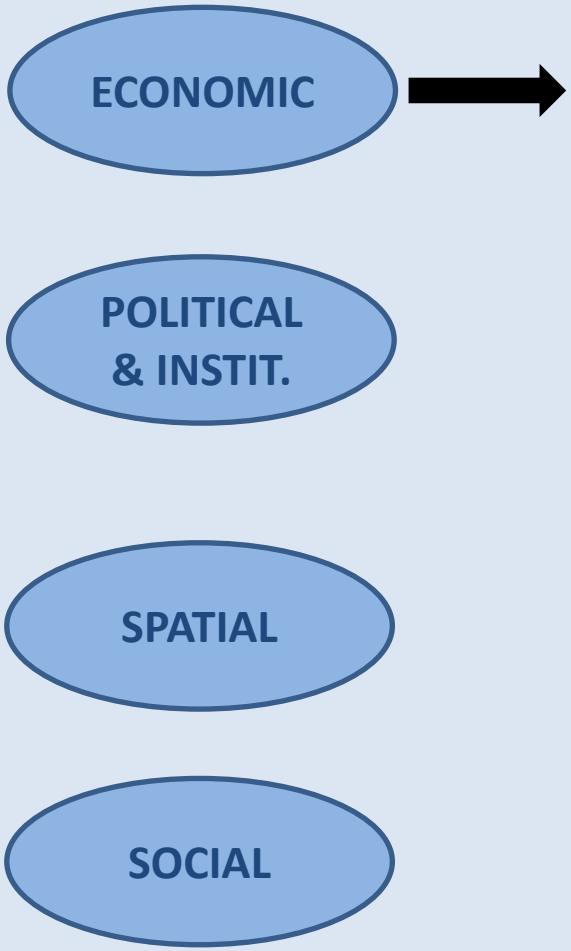
cost advantages that enterprises obtain due to the production of two or more inputs simultaneously.

⇒ **Determine the best production set for a given economic context**

Labour income is lower in sheep farming systems



(Agreste, RICA)

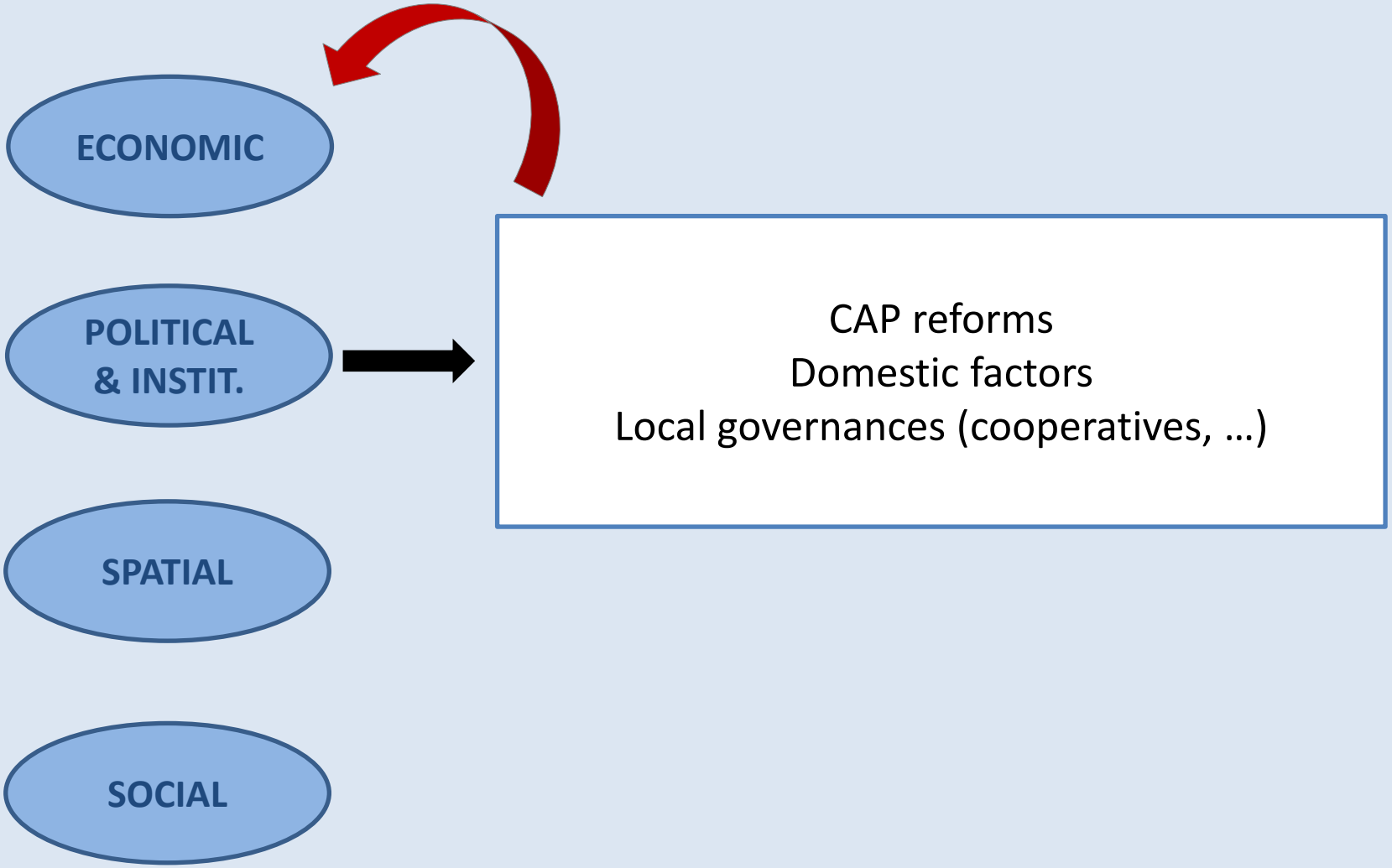


Case of French Sheep-for-meat production:

Profitability mainly determined by:

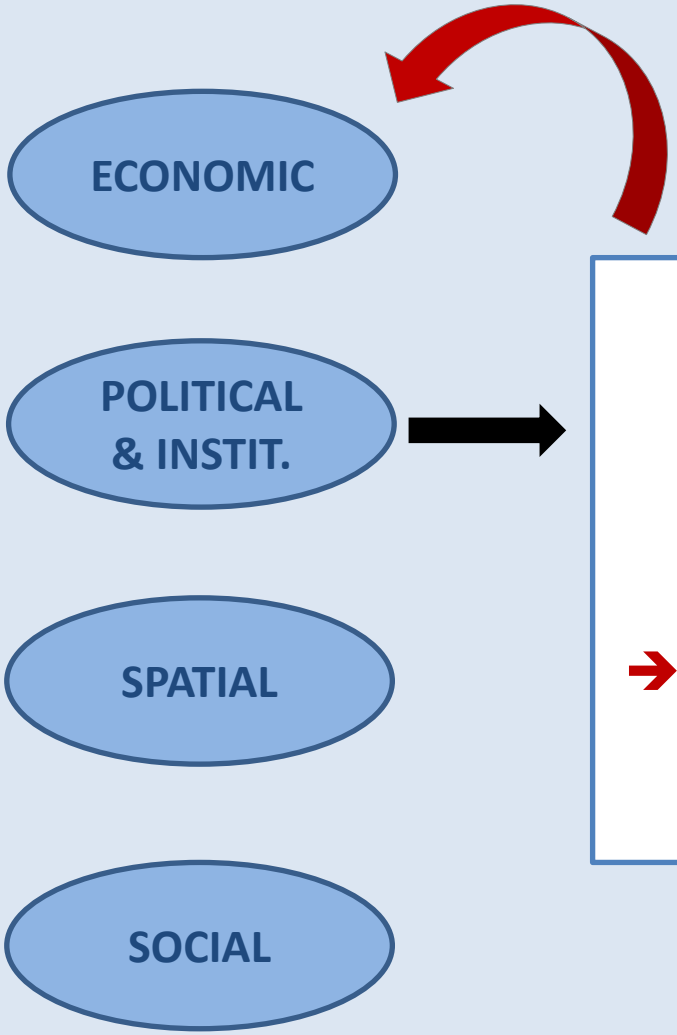
- High numerical productivity
- Low consumption of concentrates

➔ **Increasing of input prices expected**


ECONOMIC
POLITICAL & INSTIT.
SPATIAL
SOCIAL
CAP reforms
Domestic factors
Local governances (cooperatives, …)

Subsidies per worker are higher than income

(INRA Network)

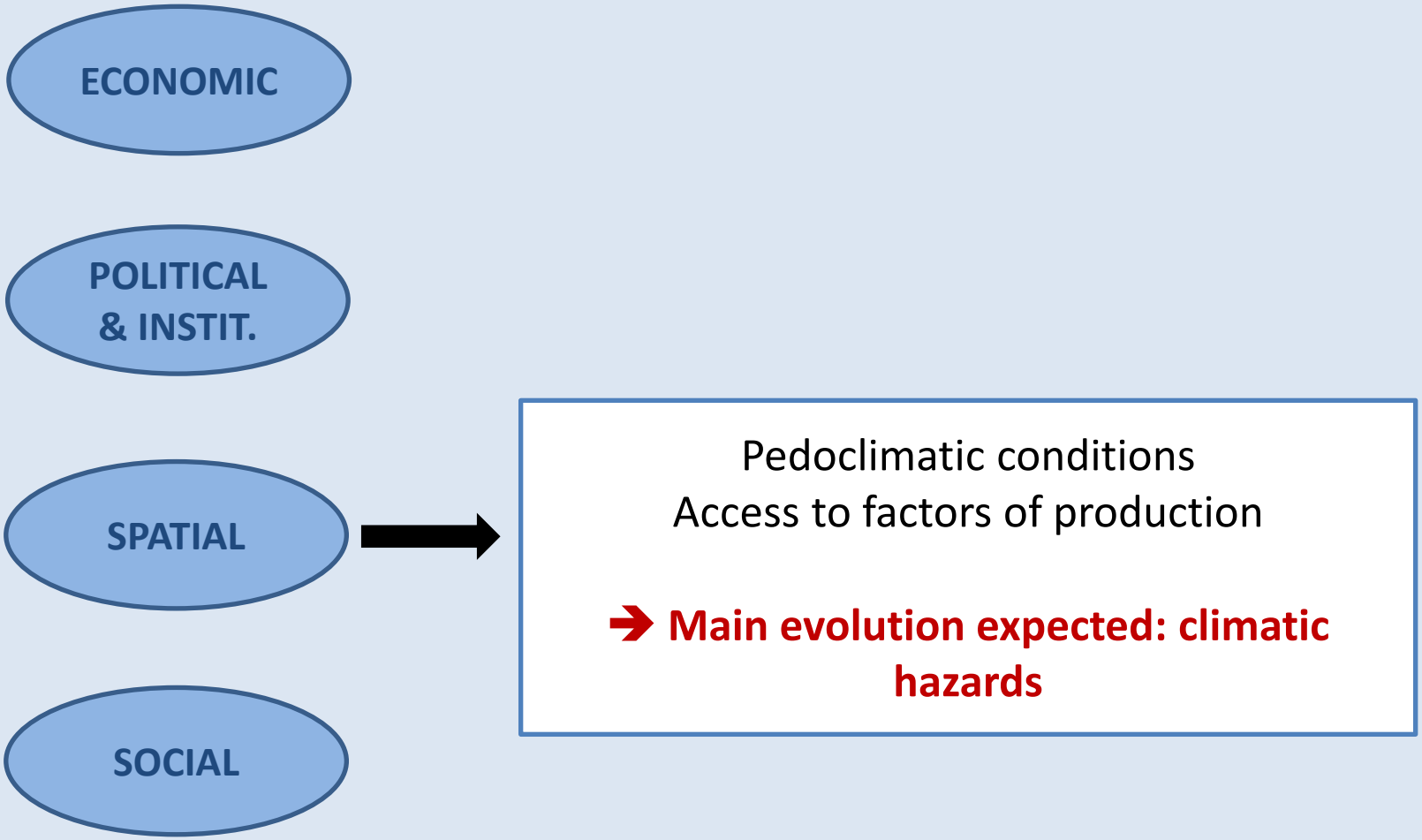


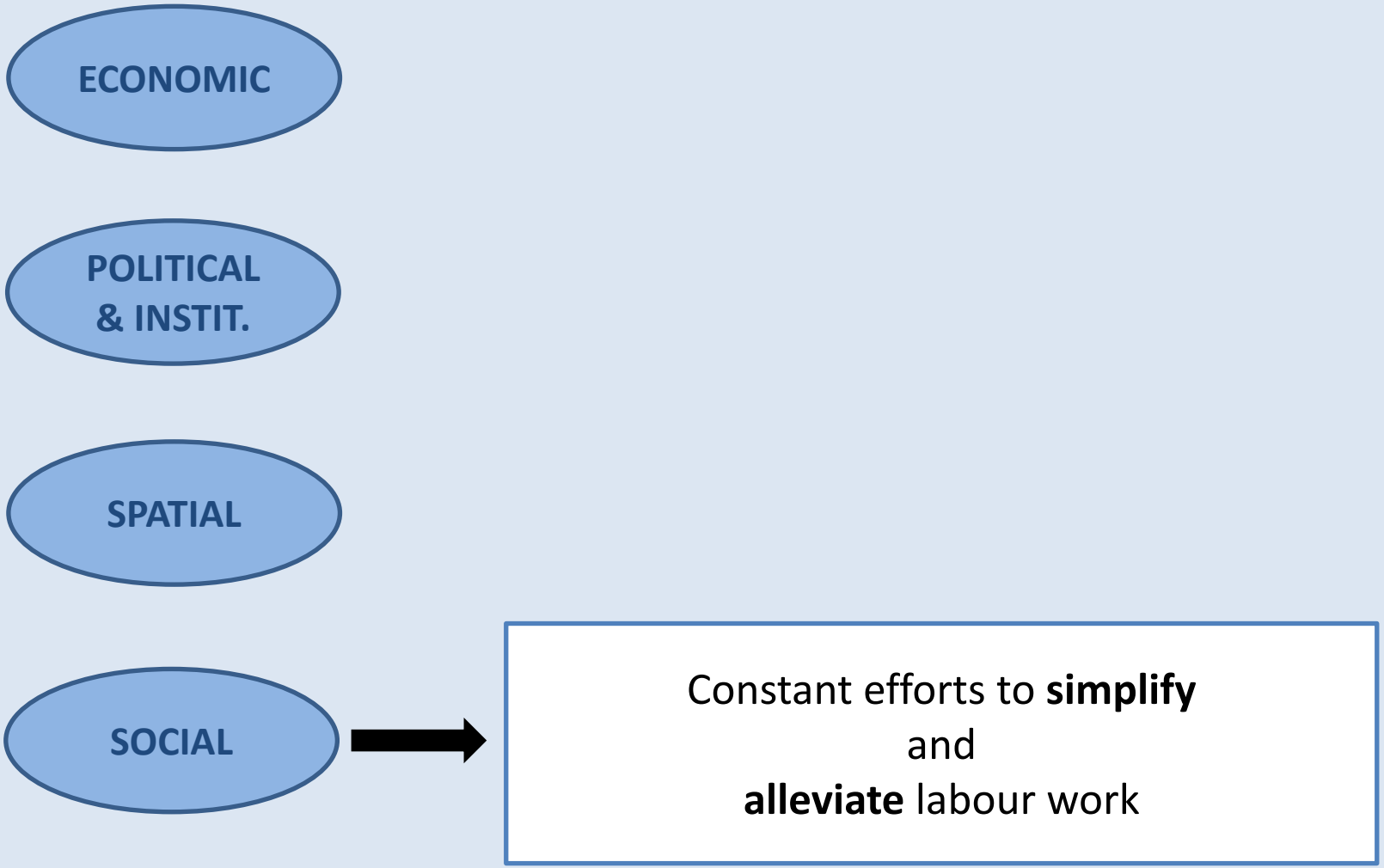
CAP reforms
Domestic factors
Local governances (cooperatives, …)

➔ Uncertainty about future european financial supports

➔ New environmental policies (GHG, biodiv., …)?

➔ New forms of governances ?


ECONOMIC
POLITICAL & INSTIT.
SPATIAL
SOCIAL
Pedoclimatic conditions
Access to factors of production
➔ Main evolution expected: climatic hazards


ECONOMIC
POLITICAL & INSTIT.
SPATIAL
SOCIAL
Constant efforts to **simplify**
and
alleviate labour work

PROFITABILITY

High and constant in presence of

- Climatic and economic hazards
- Higher input prices on the long term

ENVIRONMENTAL FRIENDLY

- Lower GHG emissions, Mj consumption
- Higher biodiversity
- Lower pollutions

VIVABILITY

AGROECOLOGY >>> CROP-LIVESTOCK INTEGRATION

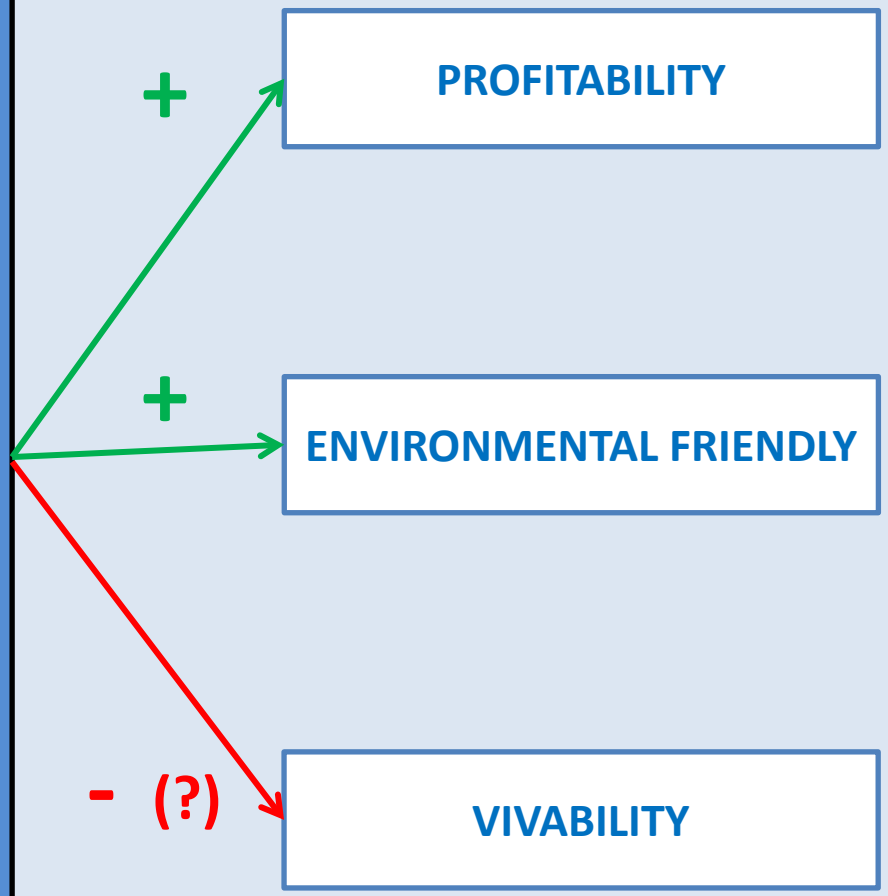
<u>High autonomy through integration:</u>

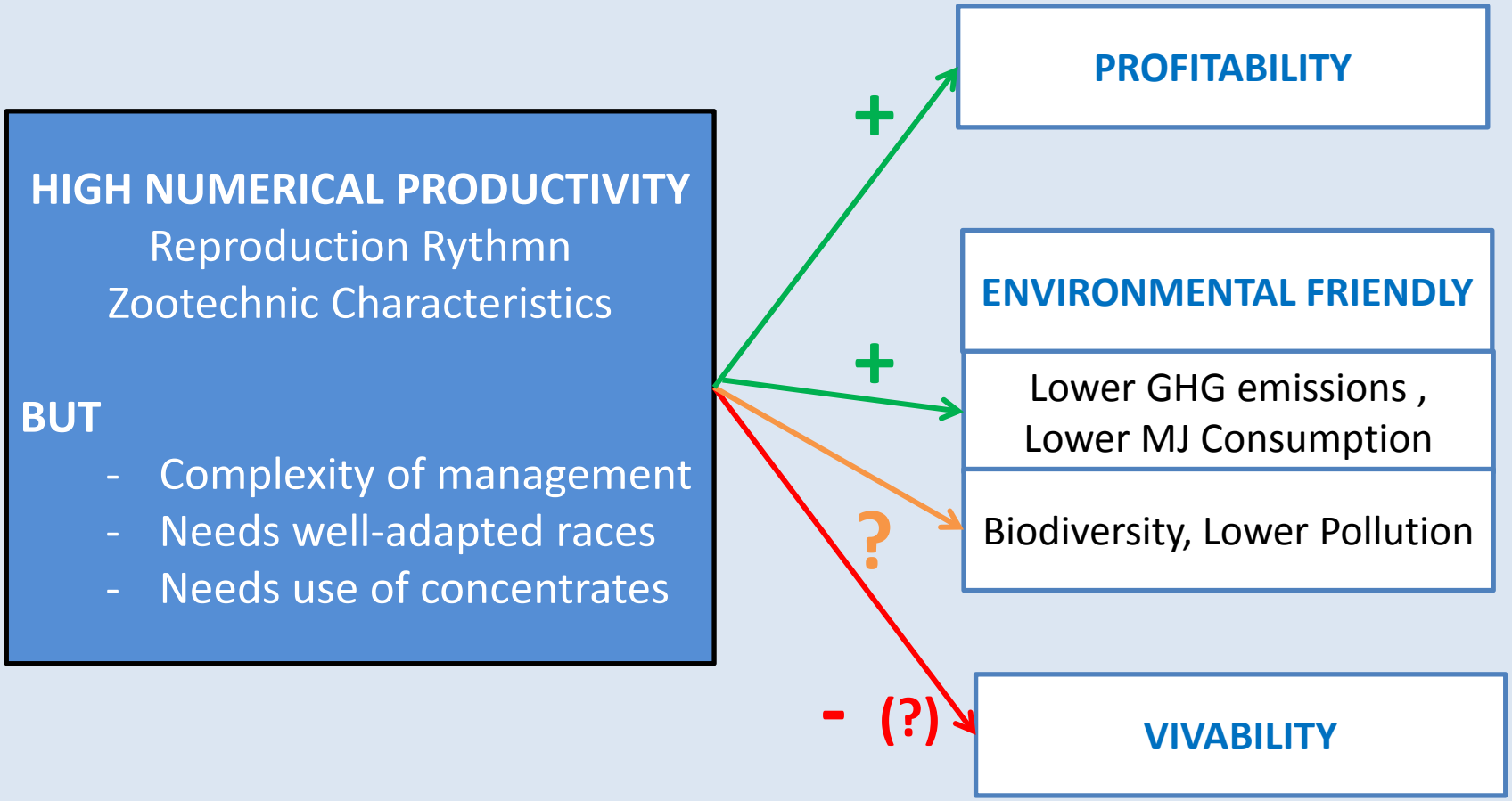
- Transfer of organic fertilizers
- Transfer of feeds (crops or subproducts)
- Rotational patterns

<u>More resilient through diversification</u>

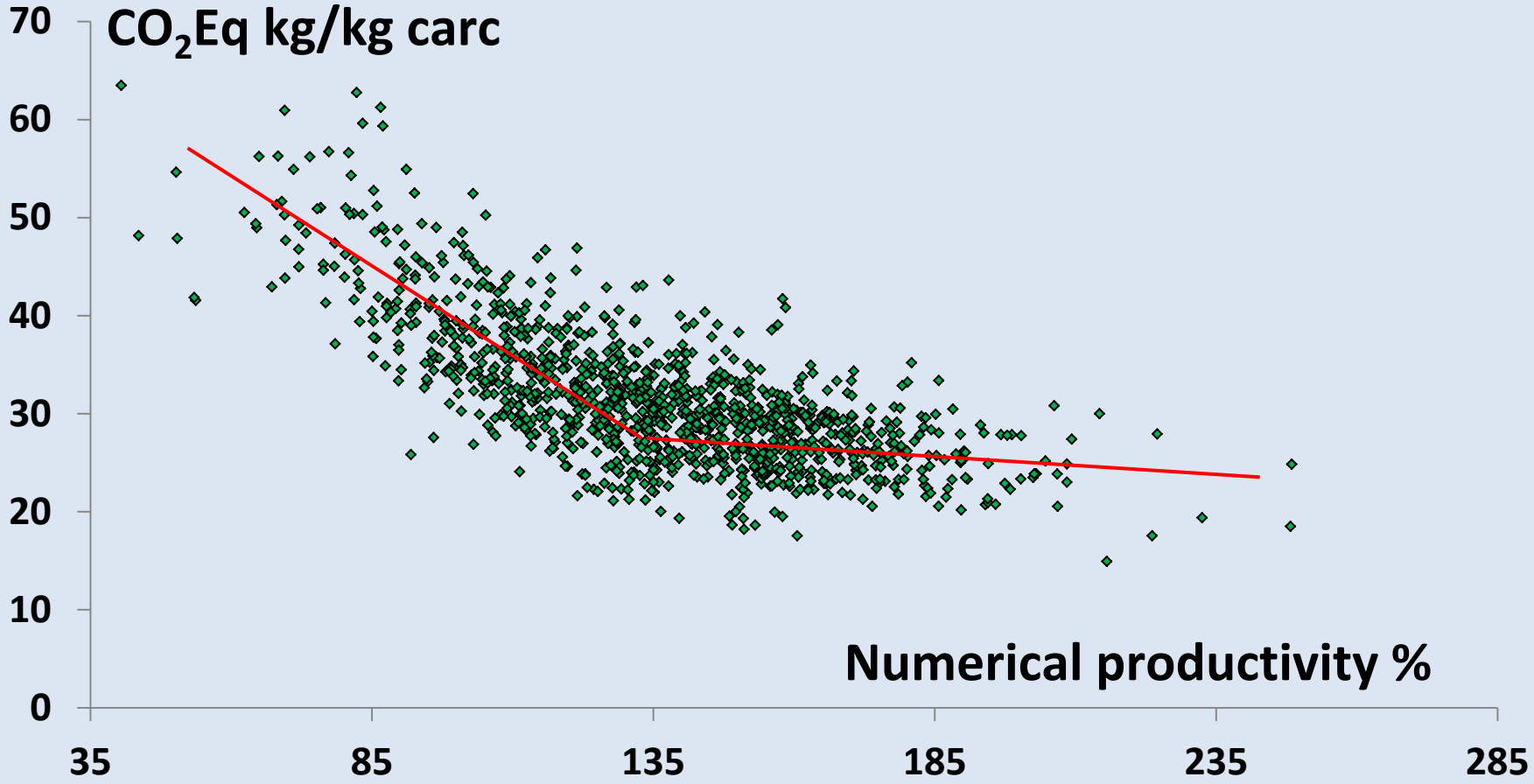
<u>More environmental friendly</u>

BUT <u>complexity of management</u>
(is it a way to enhance rural cohesion?)

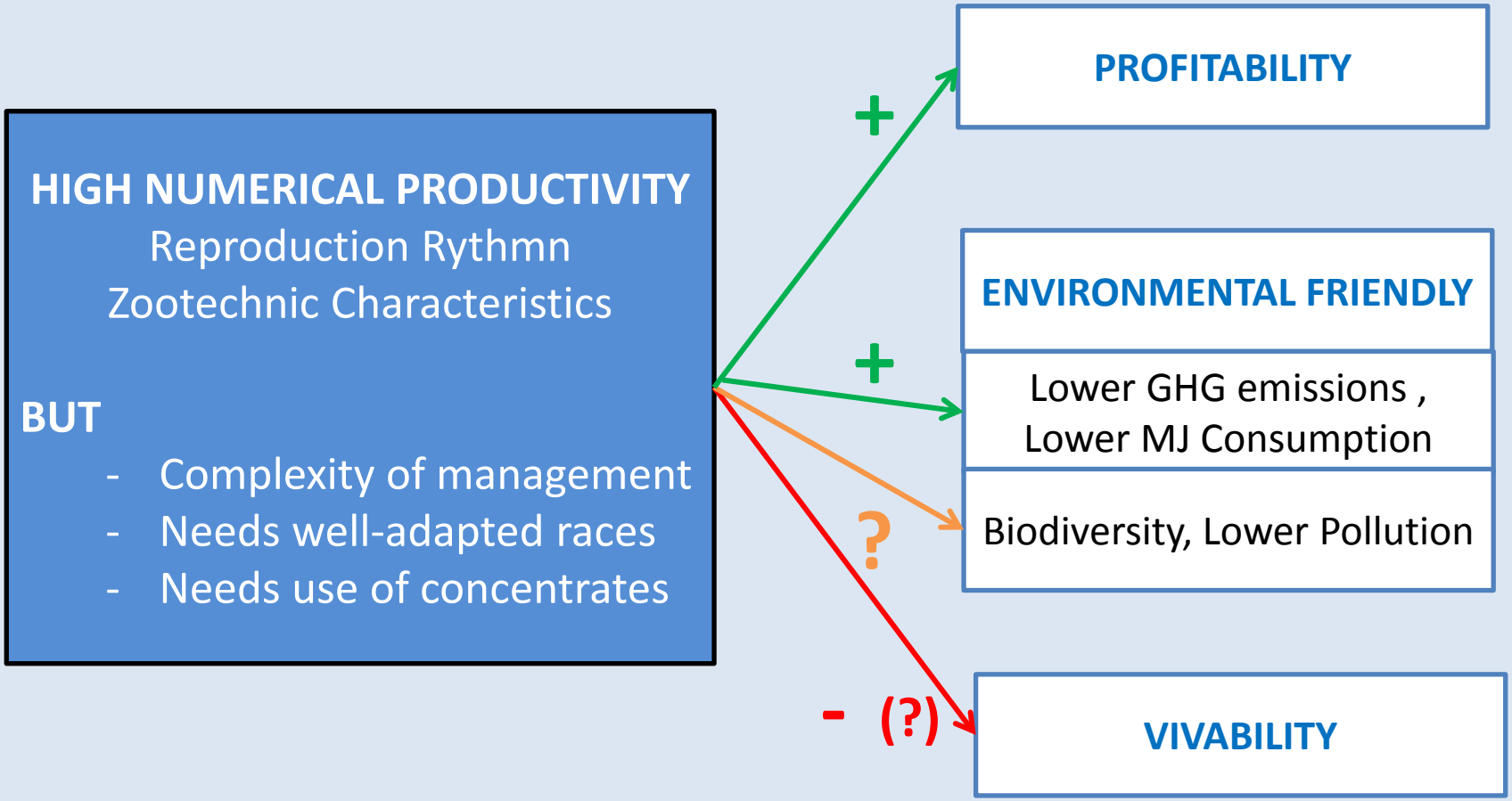



HIGH NUMERICAL PRODUCTIVITY
Reproduction Rythmn
Zootechnic Characteristics
BUT
- Complexity of management
- Needs well-adapted races
- Needs use of concentrates
+
+
?
- (?)
PROFITABILITY
ENVIRONMENTAL FRIENDLY
Lower GHG emissions ,
Lower MJ Consumption
Biodiversity, Lower Pollution
VIVABILITY

GHG Emissions decrease with higher numerical productivity



(INRA Network , 1180 farms -24 years)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+
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PROFITABILITY
ENVIRONMENTAL FRIENDLY
Lower GHG emissions ,
Lower MJ Consumption
Biodiversity, Lower Pollution
VIVABILITY

Preservation of sheep-for-meat production systems **is questioned in plainland areas**.

This production can be seen as a tool to enhance **sustainability** of crop farming systems

BUT

- Crop Livestock Integration ➔ Need for a better understanding
- Sustainability ➔ Which compromise between objectives?

Thanks for your attention

Thanks to our financial supports, the French National Institute for Agricultural Research (INRA-Phase/SAE2) and the French Environment and Energy Management Agency (ADEME).

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ADEME Agence de l'Environnement et de la Maîtrise de l'Energie

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