

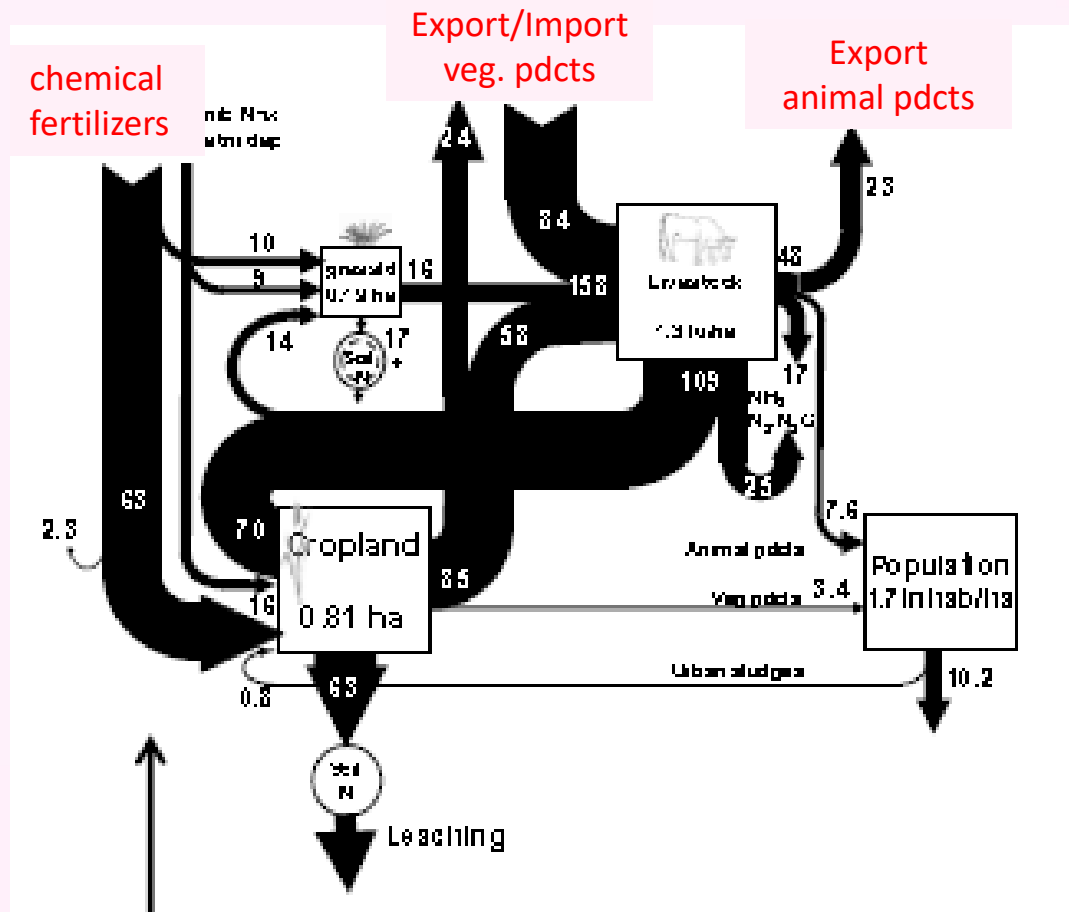
# Strengths and weaknesses of livestock-agriculture integration in territories

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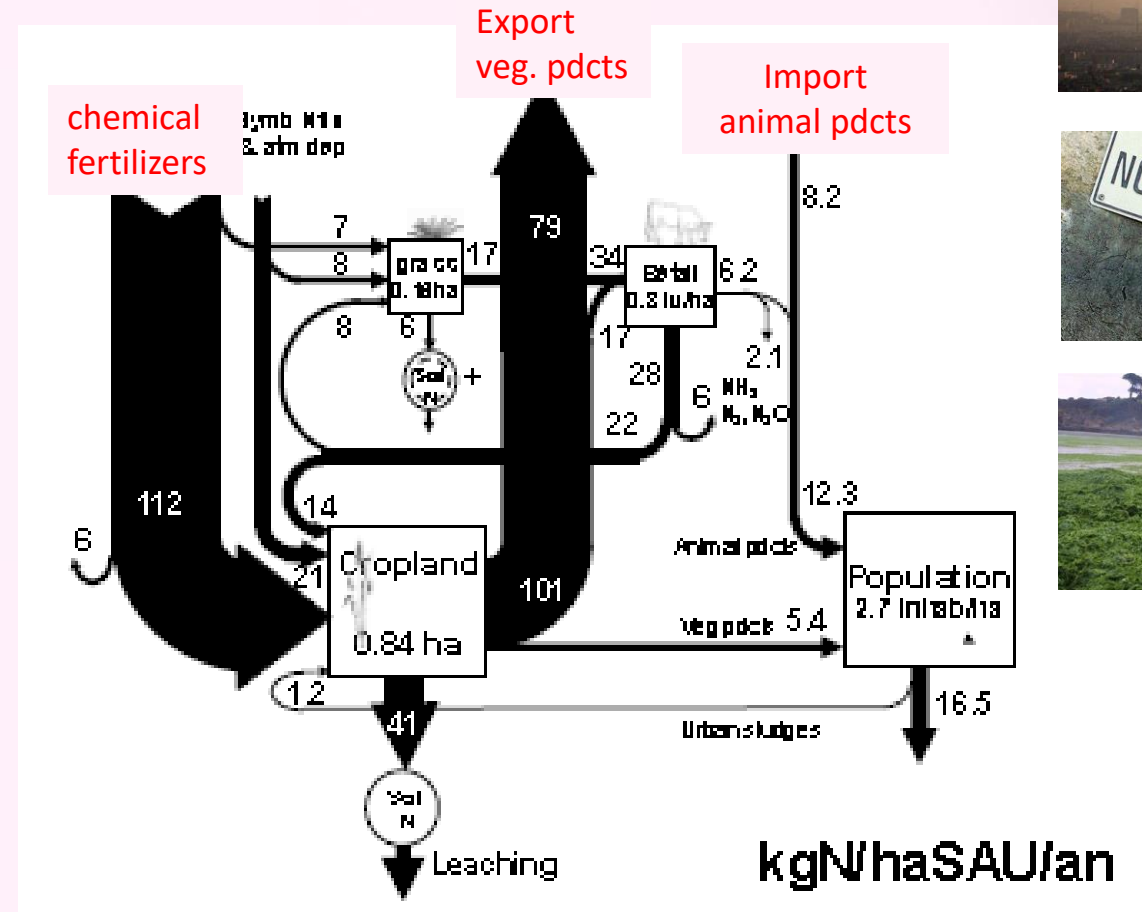
Tuesday 23 January, Montpellier

# A process of intensification and specialization, from farms to Regions

## Specialized intensive Livestock (Brittany)



## Specialized arable crops (Central France)



# “Packages of services”, at territorial level, impoverished with the decline of livestock



# Recoupling livestock and agricultural activities at stake to maintain services and save resources

- At **farm** level, developing Integrated crop-livestock farming systems
- At a scale of **collective action**, to foster exchanges between crop & livestock farms in the way of “territorial ecology” (Closing nutrient cycles)
- At **territorial** level, to include various types of actors to crop – livestock interactions (citizens, local policies...)



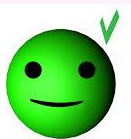
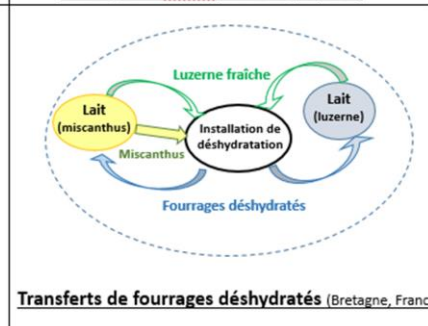
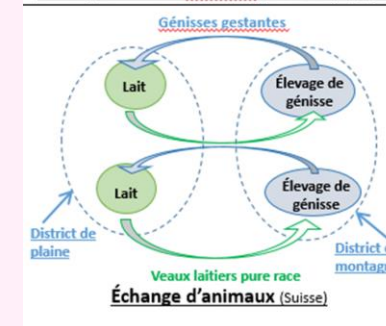
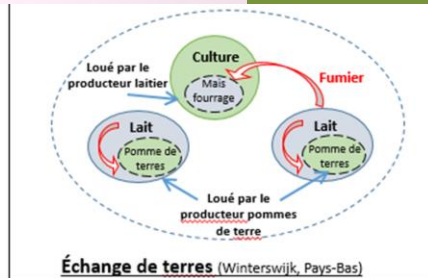
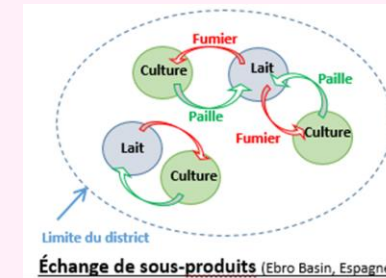
Numerous factors in favor of specialization : Markets, Agricultural policies, enlargement of farms, socio-technical locking...

What can we learn from recoupling experiences ?

# Exploring levers of action and opportunities, at the scale of collective action

## Cooperation between crop/livestock neighboring farms

- By-products exchanges (manure, compost, straw)
- Land exchanges (crops, meadows)
- Animal exchanges (lowland <-> mountain)
- Fodder production (crop farms -> livestock farms)
- Common crop management
- New livestock facility to valorize crops and produce energy (methanation unit) and organic fertilizer



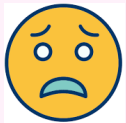
## Benefits

- Improved self-sufficiency at collective level & N use efficiency
- Reinforced social ties (often grounded in already existing groups)
- Bring some ecosystem services with diversification of crops and organic fertilization

# But these new forms of organization involve constraints & risks



- The N gain due to coupling may be used to intensify the production (increase resources use efficiency, decrease environmental performances)
- Induce a complexity in technical and organizational forms and increase the amount of work
- Raise questions on legal issues on risk, labor and cost-sharing
- Need outlet opportunities for new products



- The economic performance for farmers is relatively neutral (cost savings are possible on inputs)
- But exchanges secure supplies and prices

Regan J. et al, 2017; Gabriel et al, 2017 ; Moraine et al, 2017; Brunet A., 2017



# Exploring levers of action and opportunities, at territorial level

## Urban areas offer opportunities

- In Northern countries, citizens ask for quality and local products
  - Rennes try to develop labels on environmental quality
  - Rennes urban area creates opportunities for milk farmers to maintain grassland and mixed farming (whereas other areas around specialized) : citizens look over their practices
- In Southern countries, increase of meat consumption, climate change, NTIC :
  - Climate change induces change in feed localization : animal sold or moved to other areas under access condition or development of enclosed breeding
  - Movements and marketing are related to farmer relations (social and tribal) : mixed systems need to mobilize new resources



Use of less productive areas

Mixed systems well placed to join local initiatives

Able to respond to market demand

Create geographic disparities  
Lack of quality label

# Some lessons on

## The studied dynamics

- Produce **collective action**, new forms of organization, help to build **new rules and references**
- Generate **learnings** in order to connect with other actors to allow the evolution of their production system
- **Preexisting relations** and dynamics seem important to ensure continuity of the collective (building trust to accept the new constraints)
- An **in-depth discussion** between farmers on their commitments is more adapted than contracts; allowing organizational flexibility

## ... and their effects and consequences

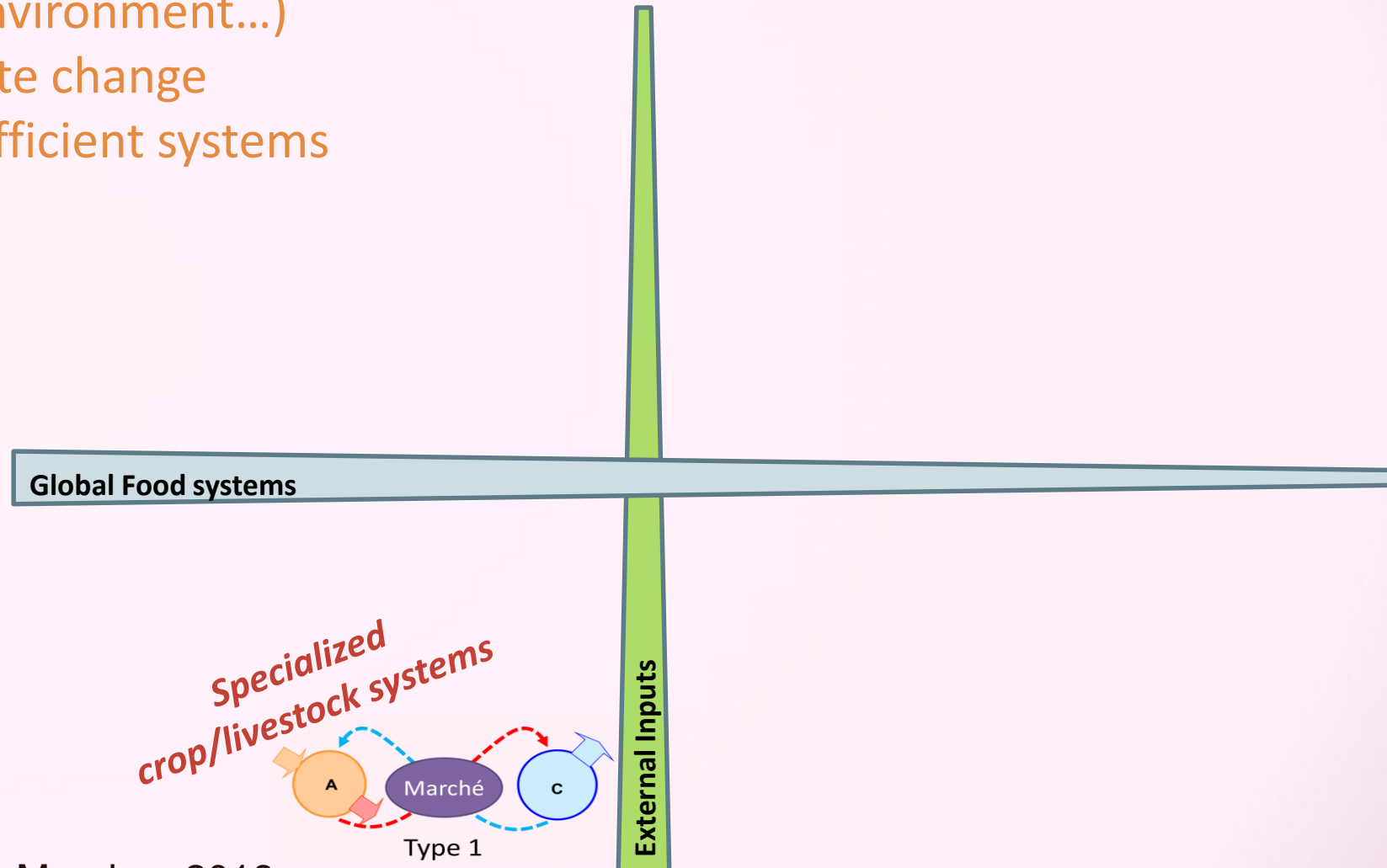
- **Ambivalent effects on sustainability** : positive on social aspects, neutral/positive on economic performances, positive/negative on environmental impacts
- **Low participation** of other actors of territories
- Trade-offs, choices and benefits which vary according to scales and actors involved



# Recoupling : for which model of agriculture?

A wide range of integration between crops & livestock can be an opportunity :

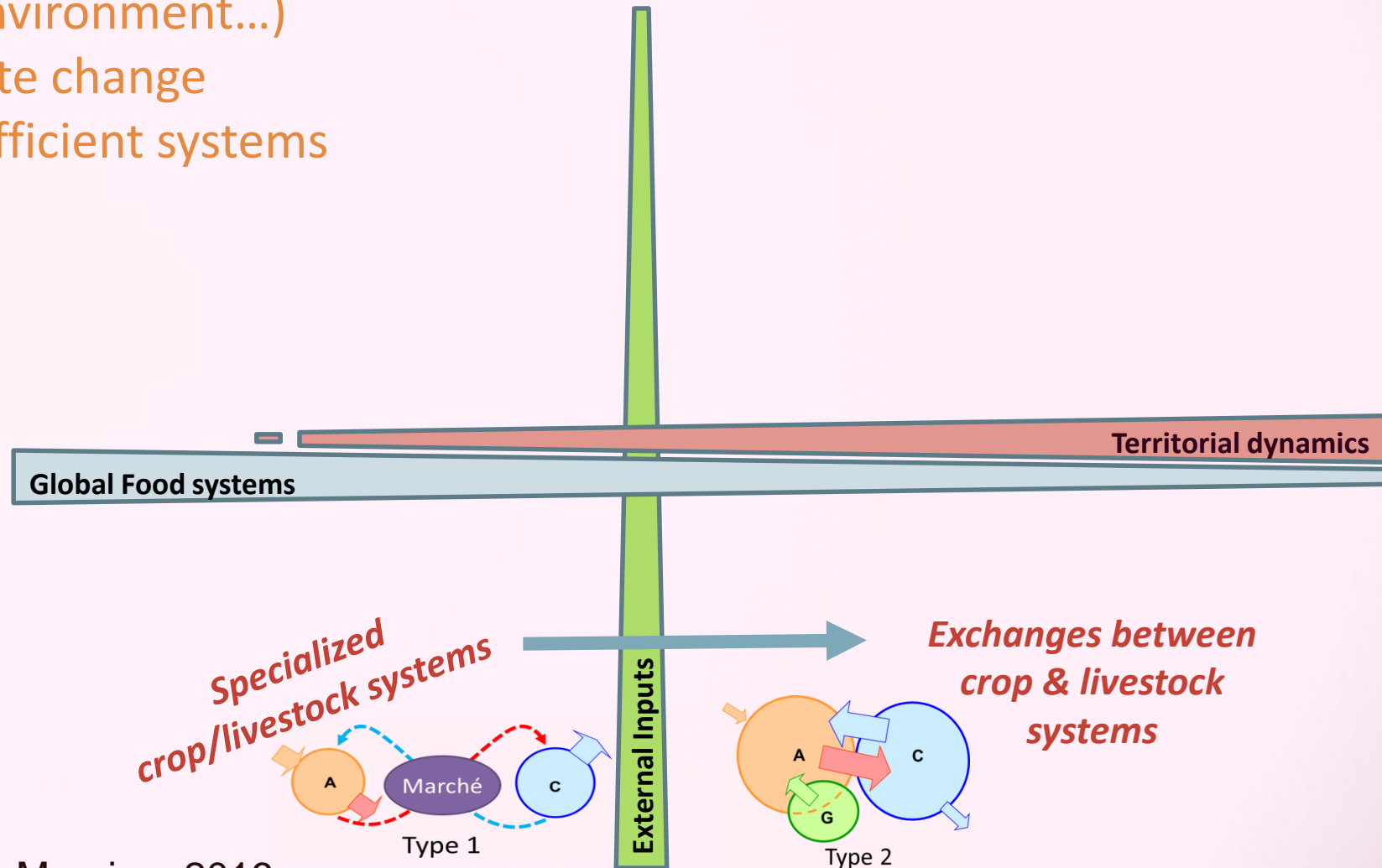
- To answer to social demand (products quality, environment...)
- To adapt to climate change
- To design more efficient systems step by step



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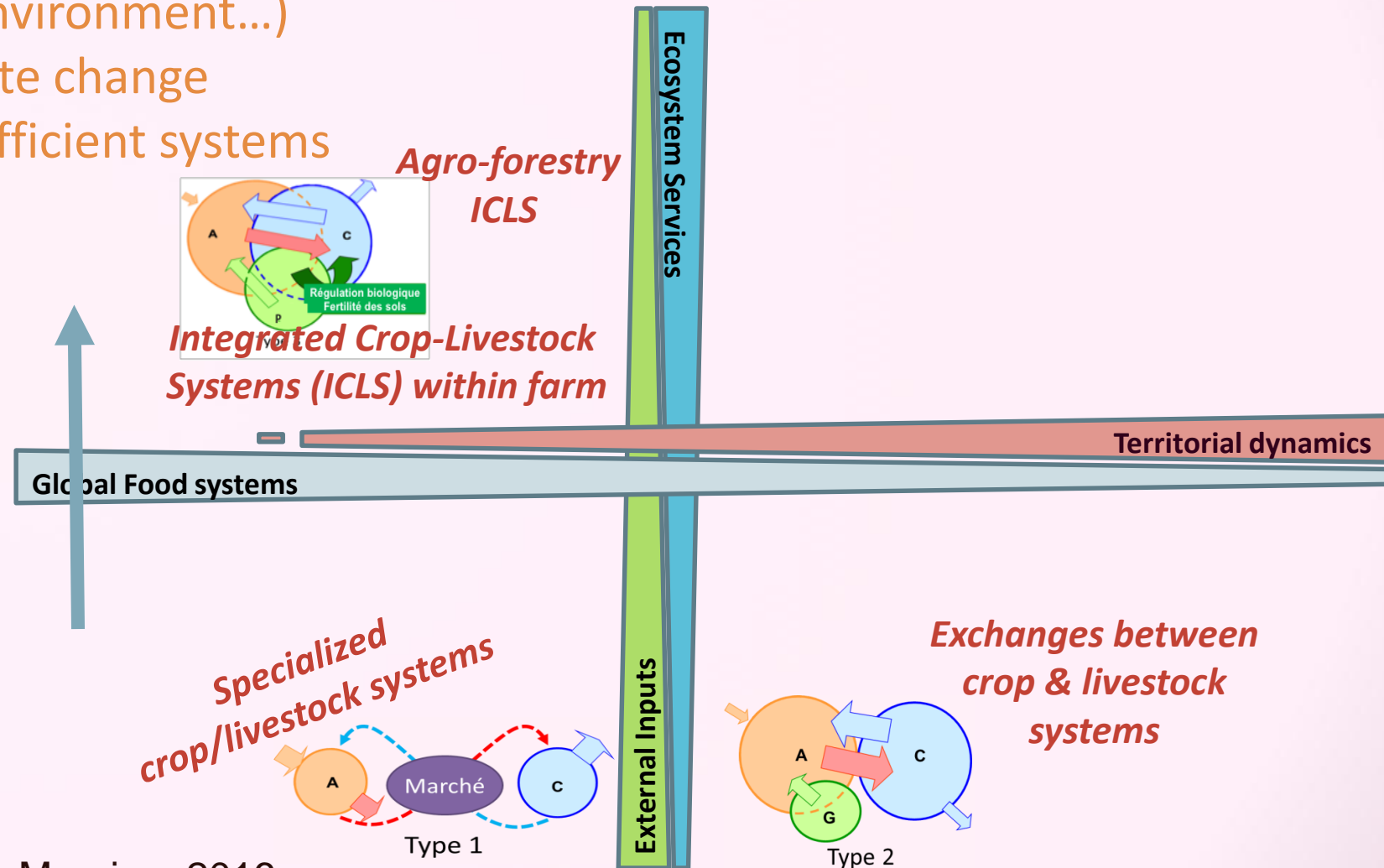
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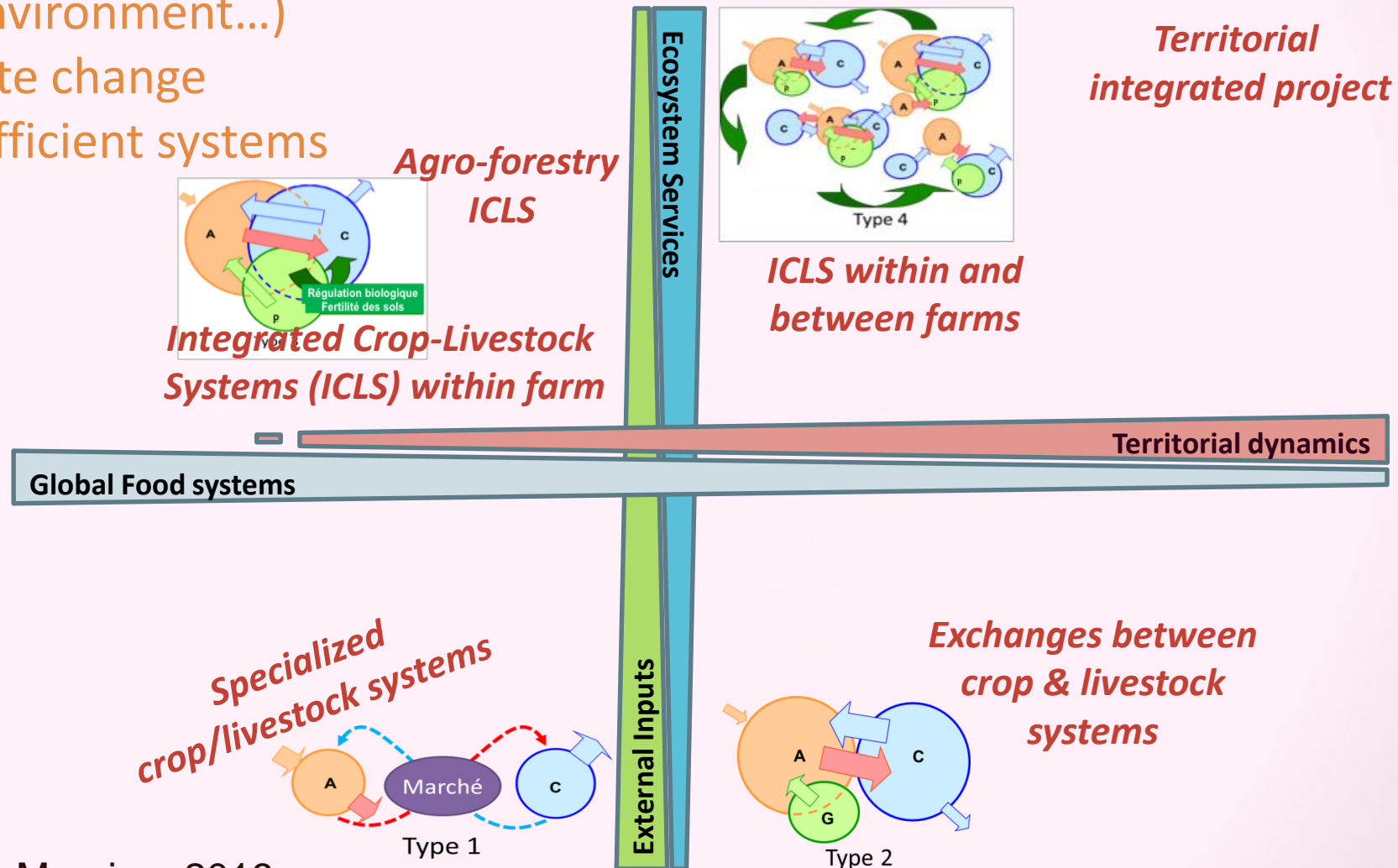
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# Conclusion: Recoupling between crop & livestock...

- Involves various levels of organization:
  - It requires to take into account various scales (farm, collective, territory)
  - It raises the question of the diversity (size and types of farms)
  - It offers the opportunity to re-legitimate some categories of agricultures
- Needs to integrate a time scale
  - Taking into account a long period allows to assess the effects of practices and main driving forces for change
  - Initialization phase is a determining item (for which objectives and commitments?)
- As a vector of territorial dynamism
  - To maintain a diversity of production in territories
  - To offer a local potential for quality products
  - To build territorial integrated projects with local actors (reinforcing the use of local resources, changing practices)

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