



# ROOTS AND USES OF AN EMERGING NOTION IN AGRONOMY: FARMER-DESIGNERS

Lorène PROST, Chloé SALEMBIER, Margot LECLERE, Quentin TOFFOLINI, Jean-Marc MEYNARD

INRAE - IDEAS (*Initiative for DEsign in Agrifood Systems*), France

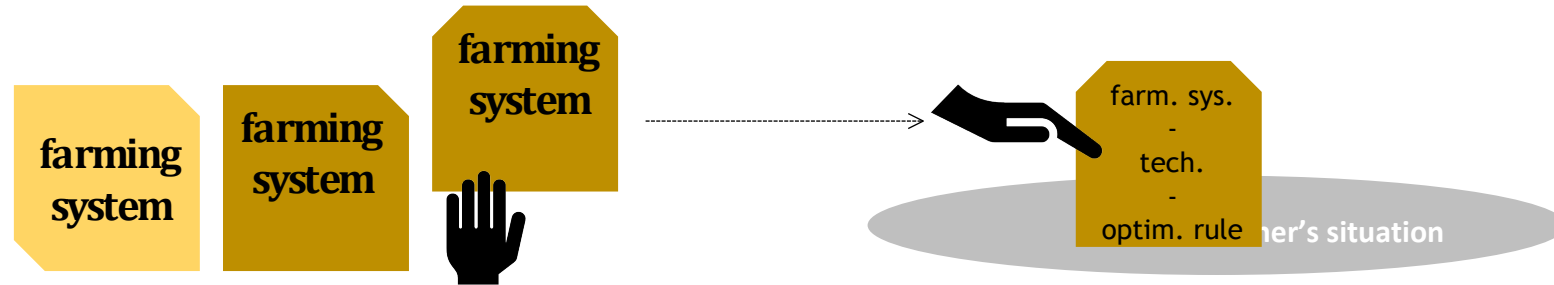


# **“FARMER-DESIGNERS”**

- 1. Why emphasizing the design part in farmers’ activity ?**
- 2. What is the design part in farmers’ activity ?**
- 3. What implications for agronomists ?**
- 4. Distributed design or multiple design activities in interaction ?**

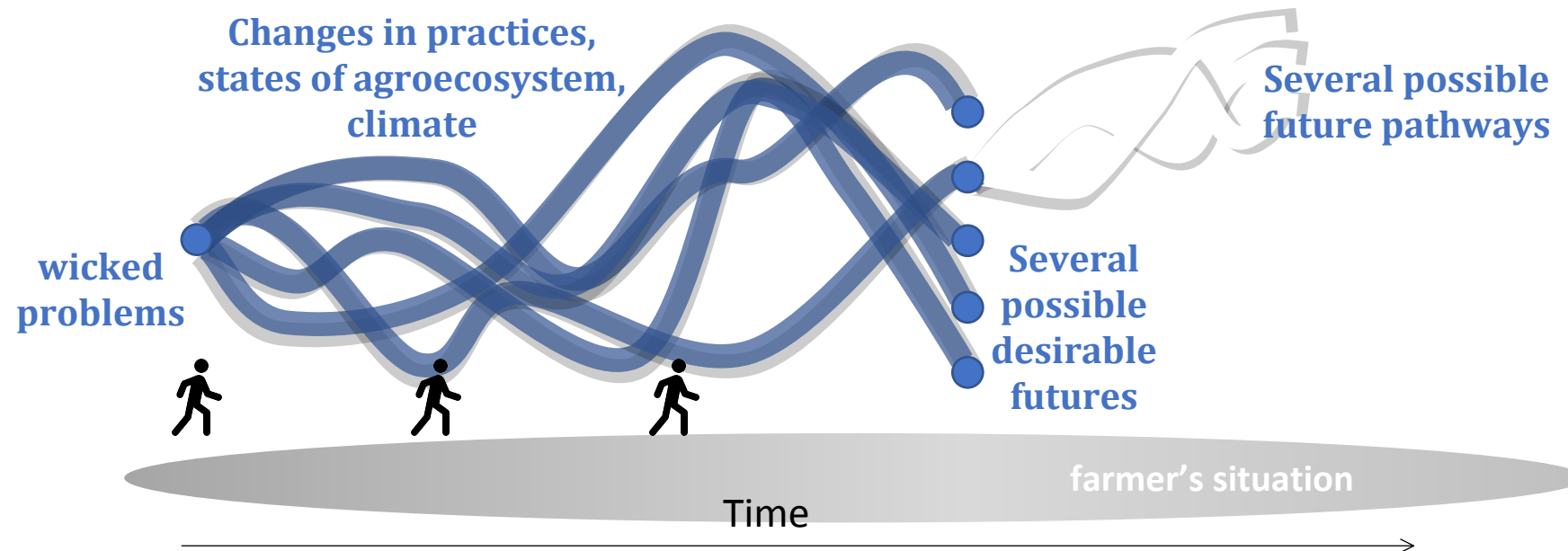
# « farmer-designer »: why emphasizing the design part in farmers' activity?

Breaking with the diffusionist idea that best farming systems could be disseminated without local, farmers' led adaptation.



Agricultural systems and actors face typical innovative design issues :

- > ill-defined directions of transformations required
- > uncertainties, difficulties to define the paths
- > context-dependent and fundamentally unknown



**“Design is concerned with how things ought to be, with devising artifacts to attain goals” (Simon, 1969)**

**A desirable and unknown future + a transformative intent (of situations, objects, actions)**

# « farmer-designer »: why emphasizing the design part in farmers' activity?

Designing farming systems ② dealing with interconnections

- between techniques, or between techniques & socio-institutional contexts
- between scales
- between time steps

(Meynard et al., 2012)

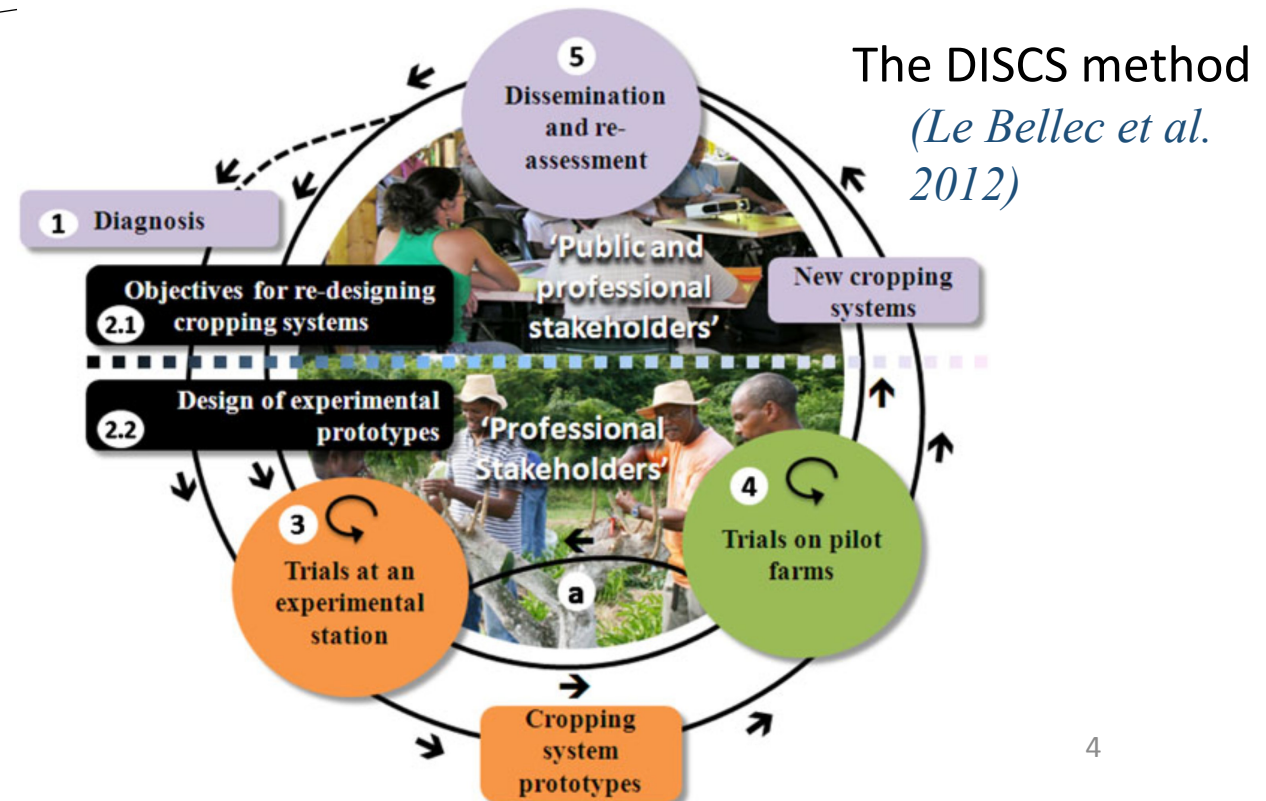
But who designs and how?

Usual design methods for agricultural scientists :

modelling (e.g. Bergez et al., 2010)

experimentation (e.g. Debaeke et al., 2009; Silva and Tchamitchian, 2018)

prototyping workshops (e.g. Vereijken, 1997; Jeuffroy et al. 2022)



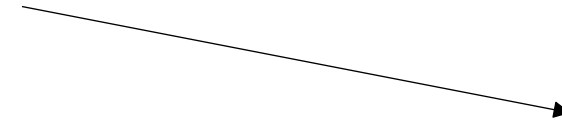
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Farmers don't just *apply* or *use* agricultural systems or techniques, but *build* and *adapt* them in their activity and creativity

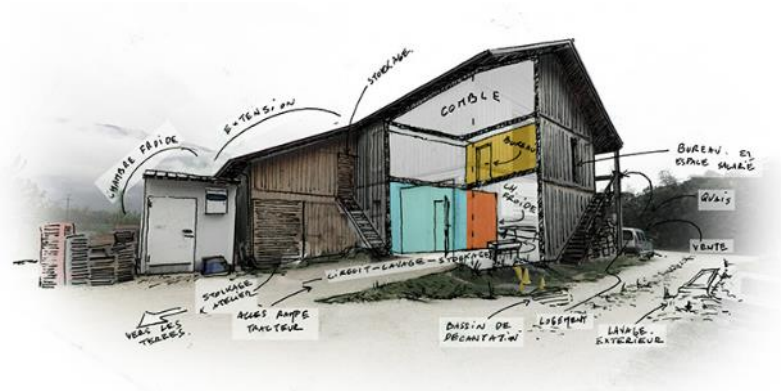
Step-by-step design *(Meynard et al. 2012, Coquil et al. 2017)*

Trajectories of practices change *(Mawois et al. 2019)*

The human aspects of farming systems (aesthetics, sense, values) *(Darnhofer et al. 2012,*

# The design part in farmers' activity : individual and collective

## Individual design of (sub)systems



Building - self-built tool by a farmer (Atelier Paysan)

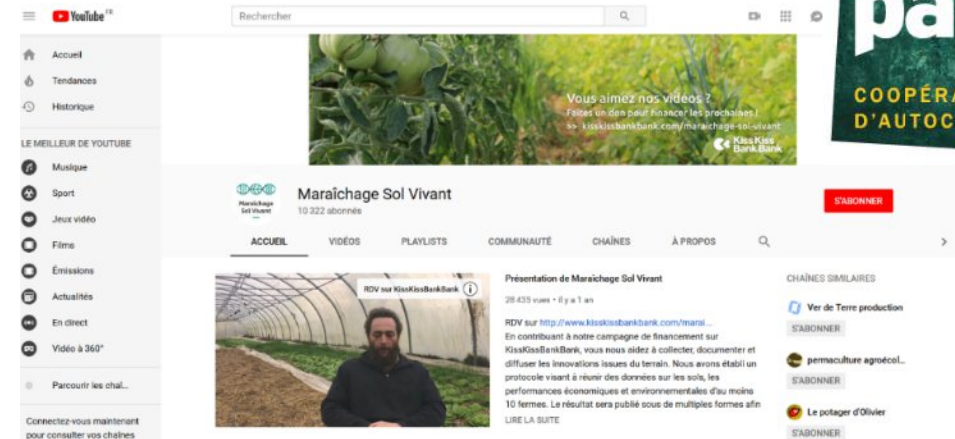


Rapeseed under clover cover (Agri'novateurs, 645<sup>0</sup>)



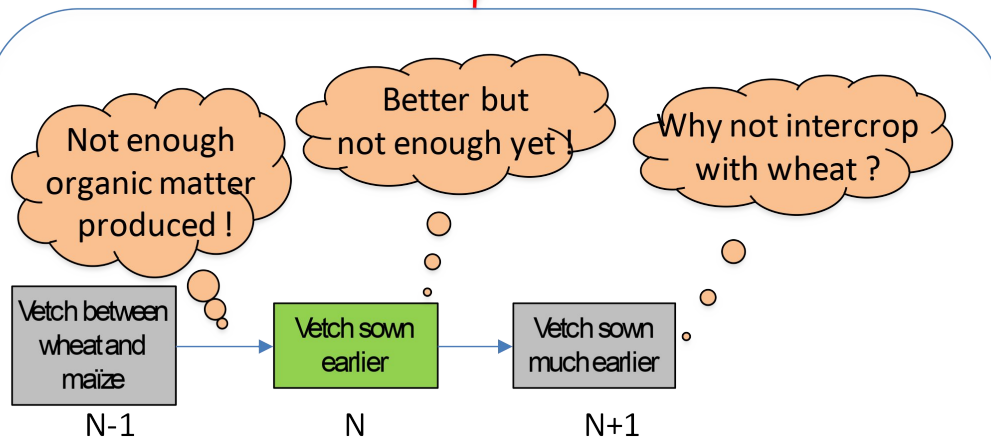
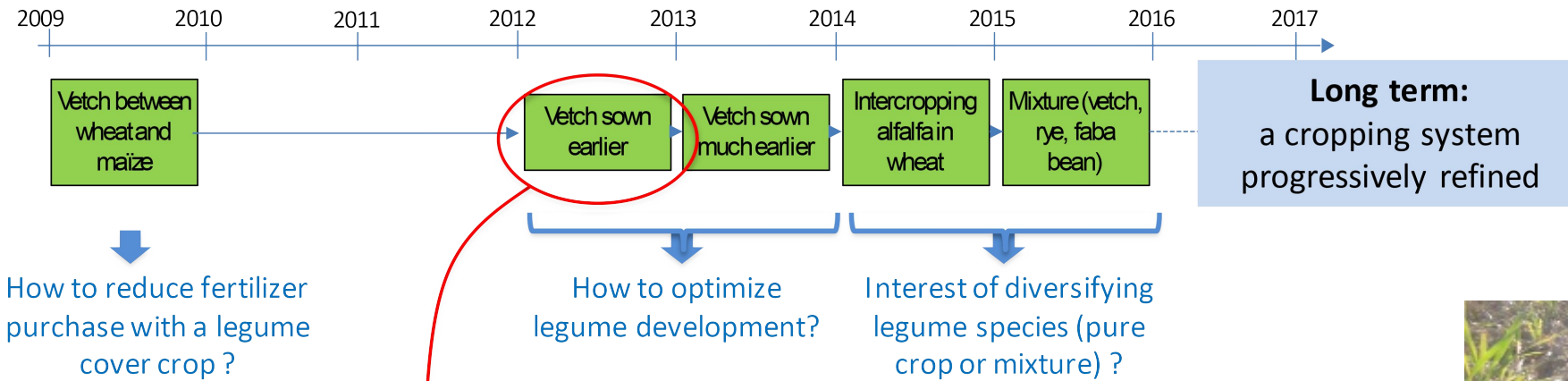
Breeding with the Simmental breed (Agri'novateurs, 645<sup>0</sup>)

## Collective experimentation and knowledge sharing supporting design activities



# The design part in farmers' activity : iterative and long term process

**Ex:** a farmer introducing a leguminous cover crop to reduce the use of N fertilizers in a crop sequence based on wheat and corn.



**Short term:** each annual test nurtures the next one



(Catalogna, 2018)

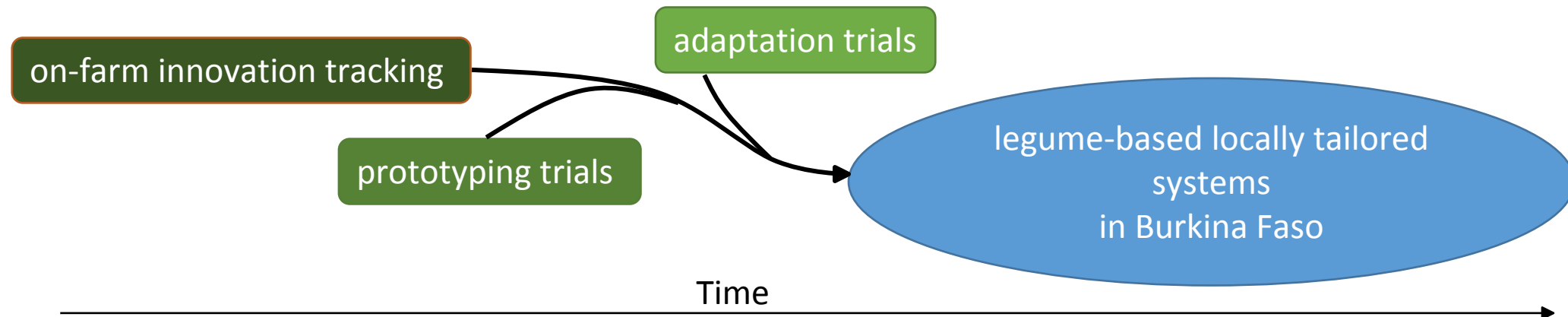
From Catalogna

# What implications for agronomists ?

A role in **design-support** rather than only design (*e.g. Le Gal 2011*)

- Which methods and tools to support farmers' creativity and design processes ?
  - From *decision support tools* to **design support tools**
  - **Tracking farmers' innovations** ☾ acknowledgement of farmers' creativity and inspiration for other farmers
  - **Combine methods** to intertwine time scales (events, follow up) and **reach situated processes**

Ex.: (*Périnelle et al. 2022*)



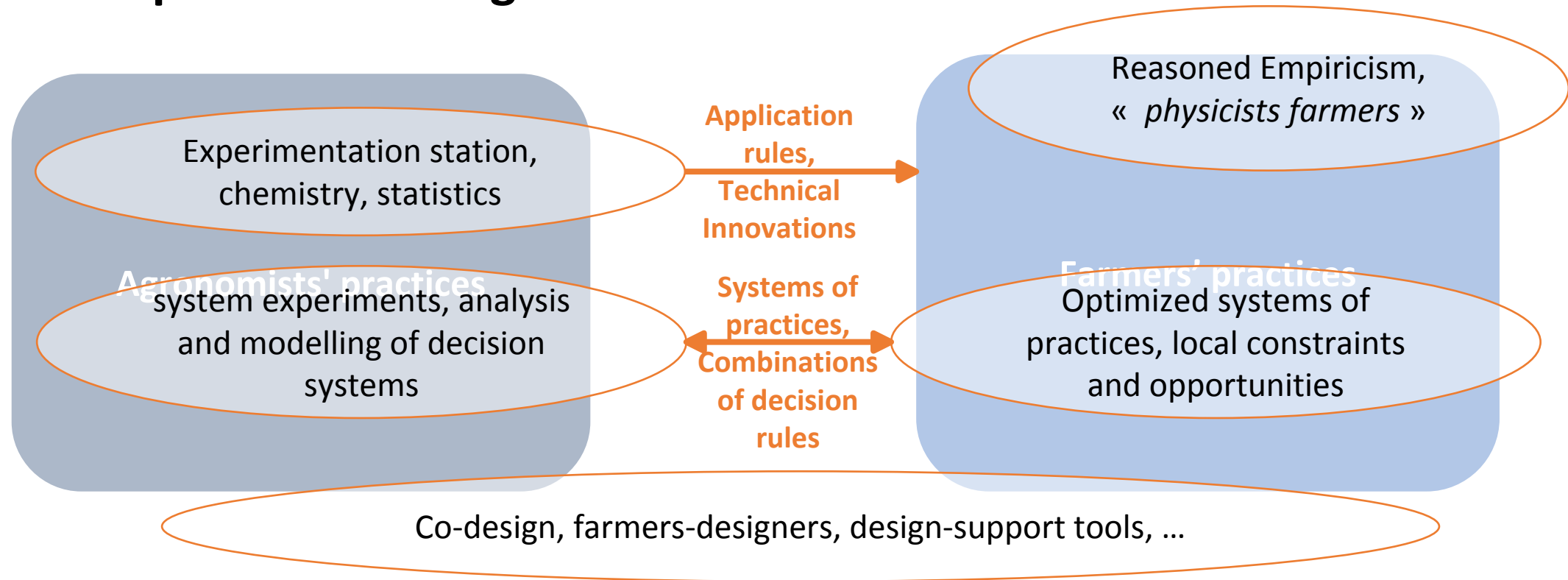


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Ex.: (*Périnelle et al. 2022*)
- **Which scientific knowledge** to fuel these design processes ?
  - **disruptive** knowledge to **inspire** farmers
  - knowledge about **what the design problem actually is**
  - Knowledge to **assess the impacts of changes** on farmers' design goals

# What implications for agronomists ?



*(Jouve 2007, Salembier et al. 2018)*

A need to acculturate ourselves to design sciences ? :

mobilize proven methods and theories to support design events and processes in farmers' activities

# Distributed design or multiple design activities in interaction?

## Farmers don't design alone

- The farmers' **work systems** are transverse to biological and technical, socio-economic and family subsystems (*Chizallet et al. 2020*)
  - ☾ farmers design more than systems of practices
- **Multiple actors interact with farmers' design activities** : advisors, citizens, consumers, local institutional actors, researchers, etc.
  - ☾ **distributed** or **collaborative design** in open innovation infrastructures ?
- **Intertwined** activities within **territories**
  - ☾ **Territorial design ? coupled innovations ?** (equipment manufacturers, plant breeders, water providers, etc.)

# The design part in farmers' activity

