



**HAL**  
open science

## Interactions between agri-chains at local level: a metabolic approach

Myriam Grillot, Sophie S. Madelrieux, Julie Fleuet, Jean-François Ruault, Pauline Marty, Philippe Lescoat

► **To cite this version:**

Myriam Grillot, Sophie S. Madelrieux, Julie Fleuet, Jean-François Ruault, Pauline Marty, et al.. Interactions between agri-chains at local level: a metabolic approach. 14th European IFSA symposium, Apr 2022, ÉVORA, Portugal. 12p. hal-03728101

**HAL Id: hal-03728101**

**<https://hal.inrae.fr/hal-03728101>**

Submitted on 20 Jul 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# BOAT



Research projet  
(2017-2020)



## Interactions between agri-chains at local level: a metabolic approach

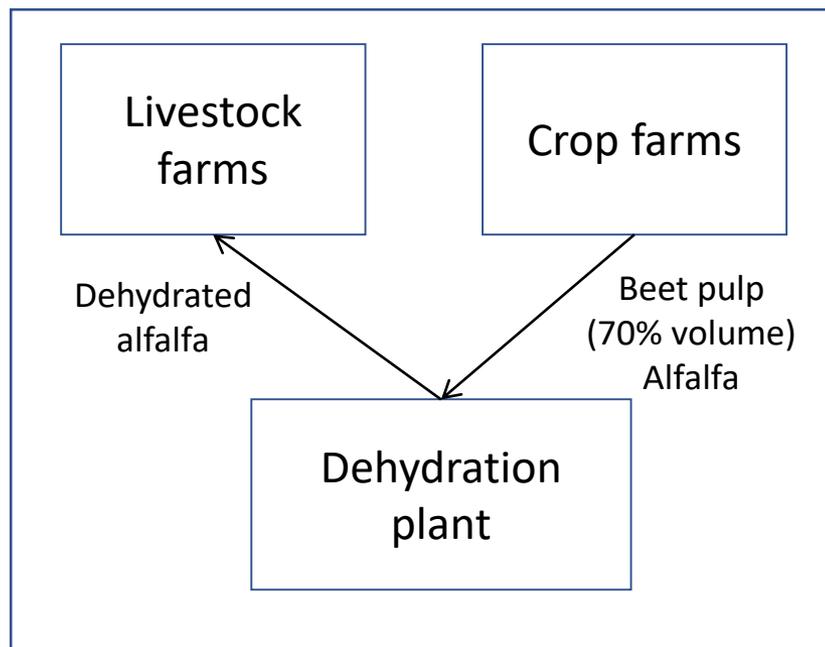
Myriam Grillot, Sophie Madelrieux, Julie Fleuet,  
Jean-François Ruault, Pauline Marty, Philippe Lescoat



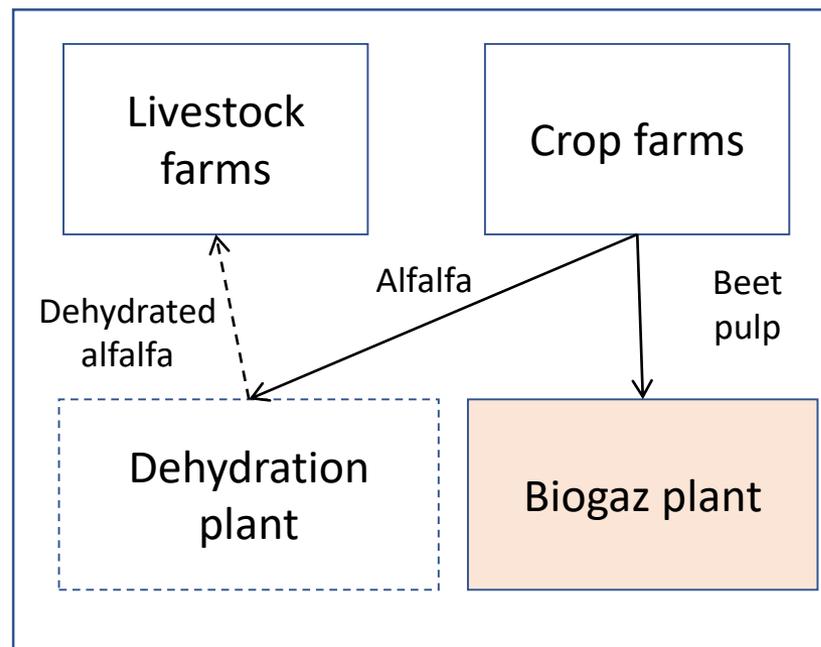
# ➤ Trade-off and synergies between agri-chains

*Northern France example: introduction of a biogaz plant*

Initial state



Introduction of a biogaz plant



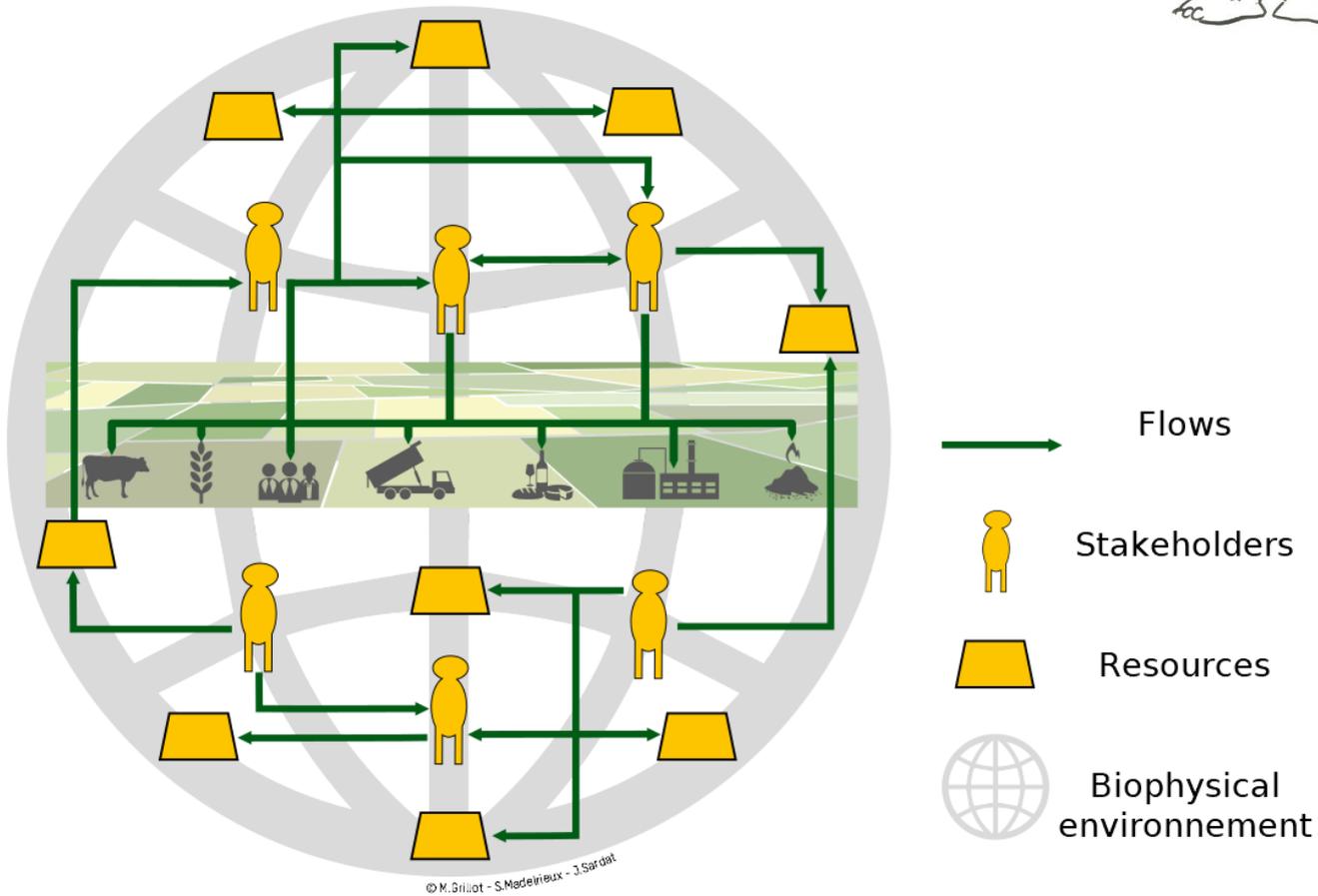
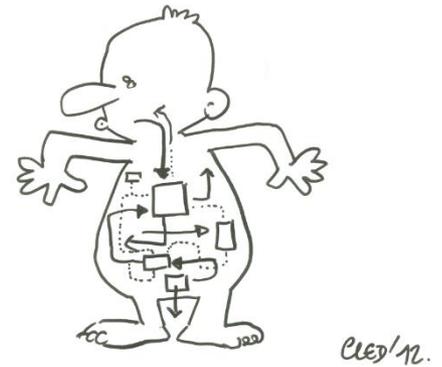
How can we identify trade-offs and synergies between agri-chains?

⇒ How are biomass of agricultural origin managed and used?



# ➤ Metabolic approach

- Quantify resources/production and flows
- Identify stakeholders

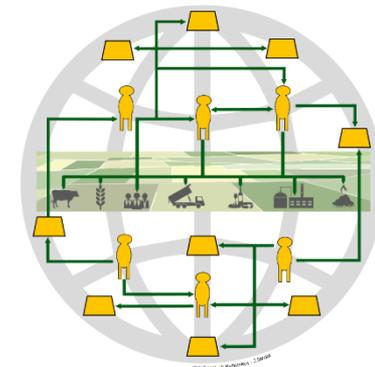


INRAE

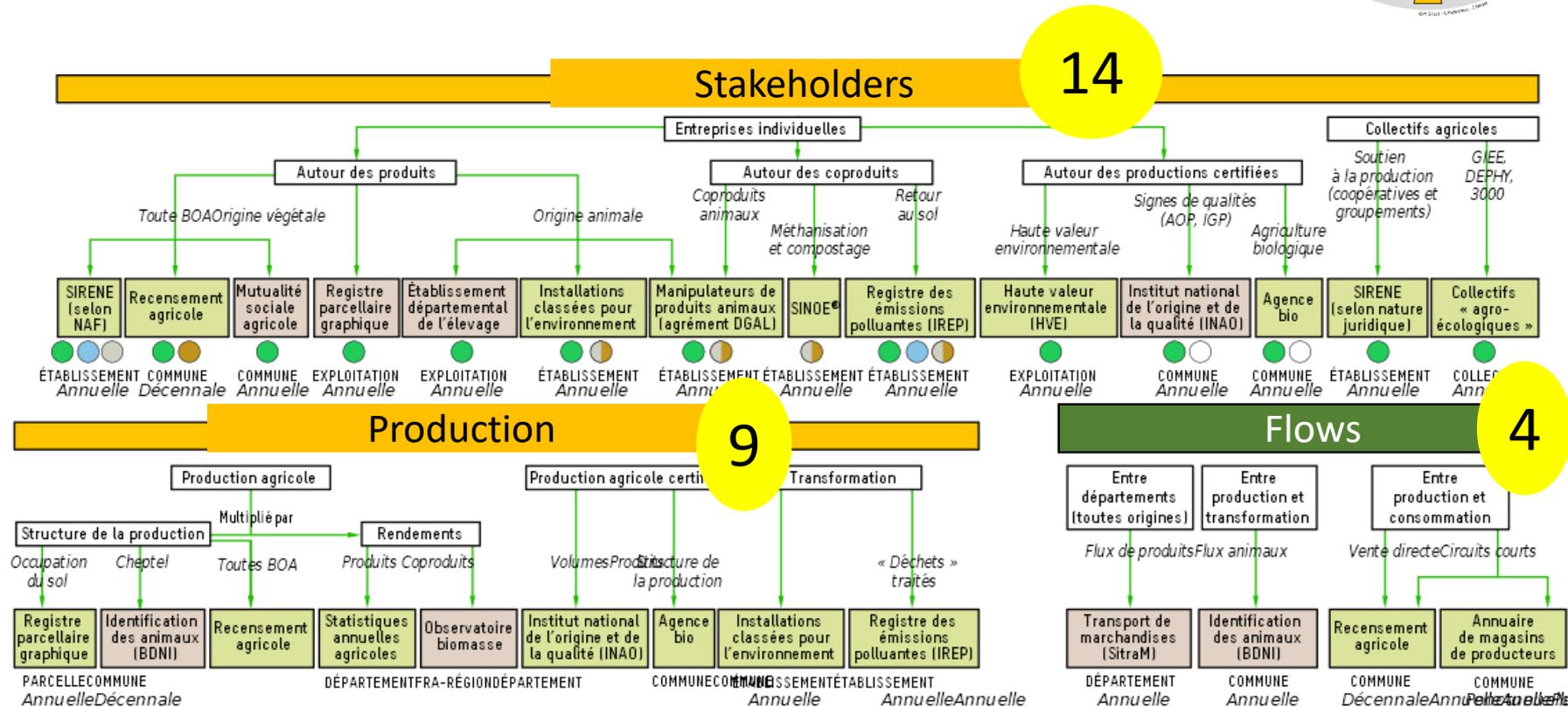
Interactions between agricultural value chains at local level  
14/04/2022 IFSA conference – GRILLOT et al.

More on socio metabolic research: Haberl et al. 2019

# Step 1: use existing data bases



- Open-access
- Restricted access



Grillot et al. 2021



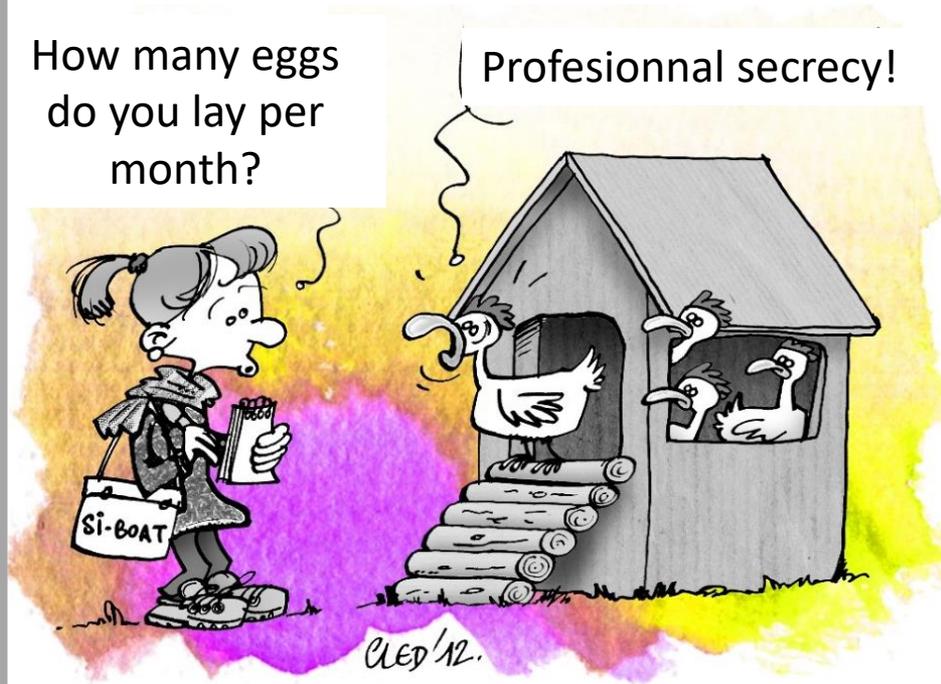
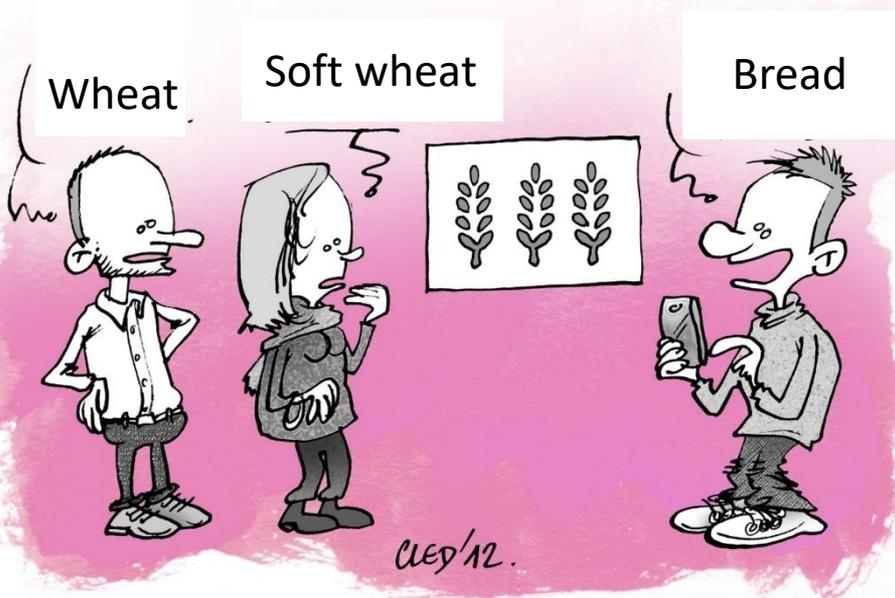
Interactions between agricultural value chains at local level

14/04/2022 IFSA conference – GRILLOT et al.

## ➤ Step 1: use existing data bases facing...

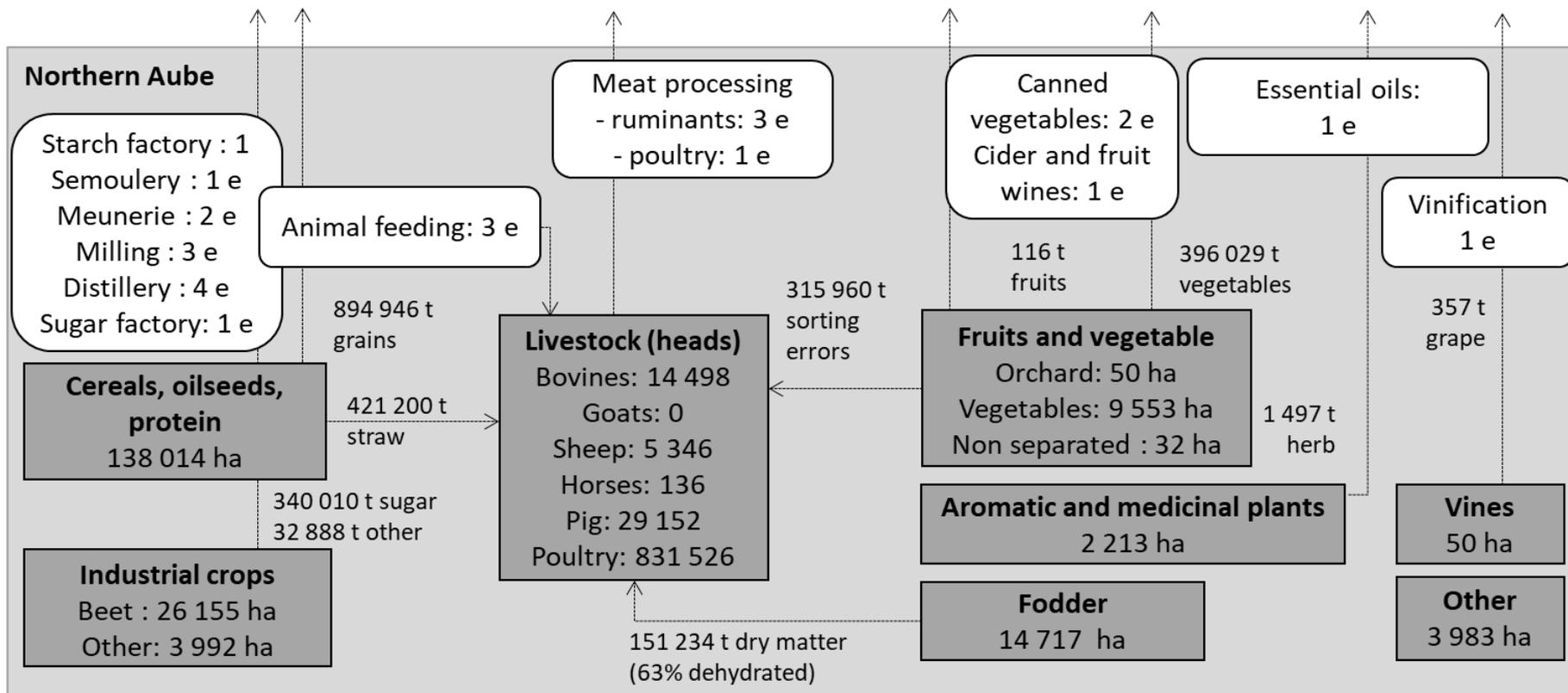
Various nomenclatures / units, etc.

Data availability, statistical and professional confidentiality



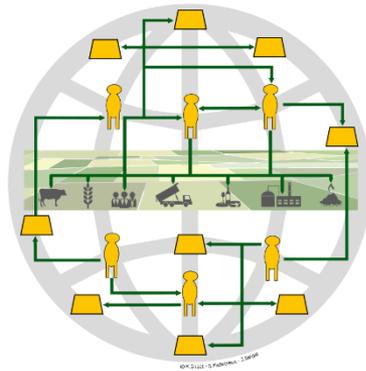
# ➤ Step 1: use existing data bases

Make hypotheses through « a proto-metabolism »

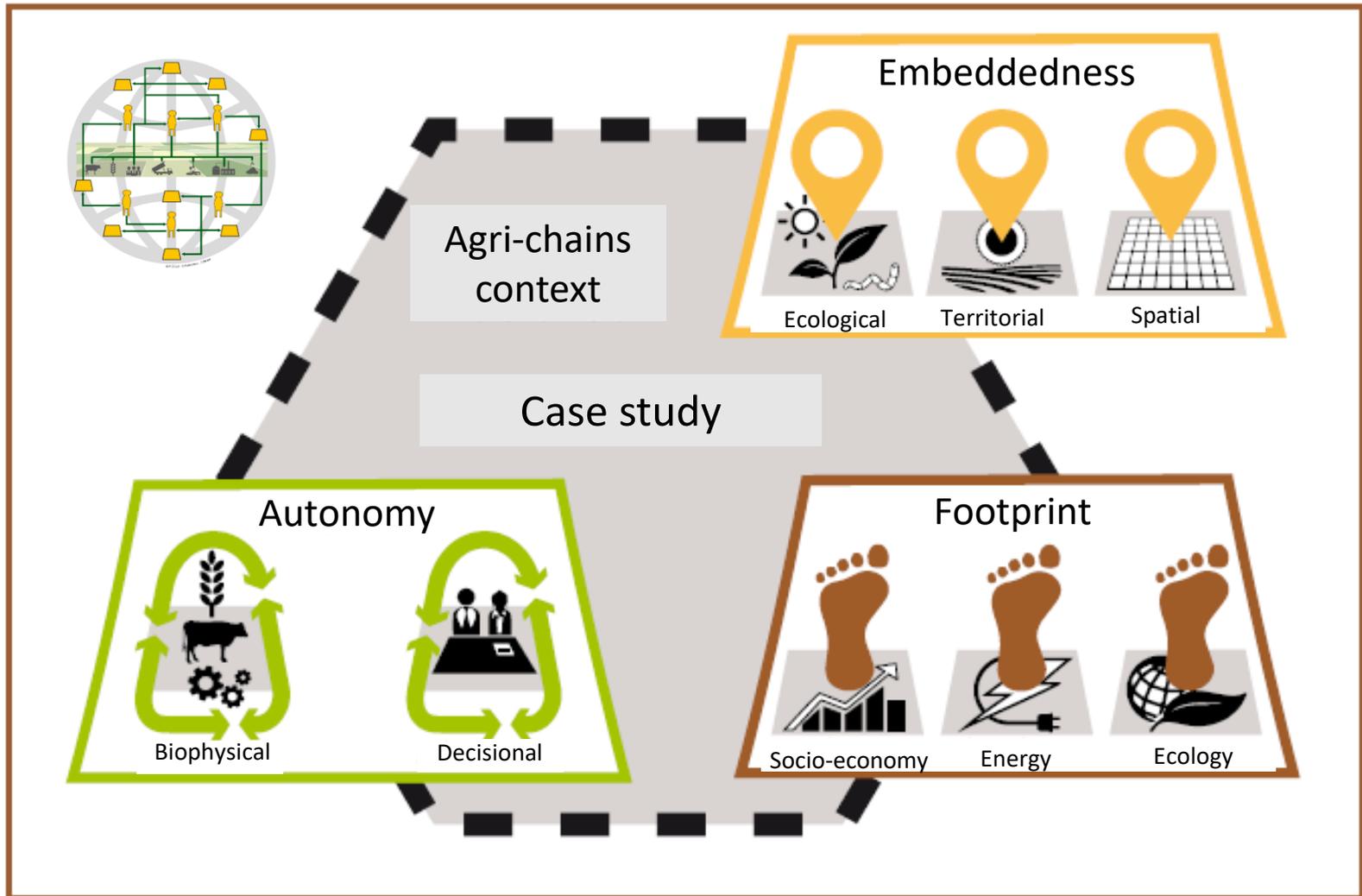


## ➤ Step 2: field interviews

Consolidate the knowledge on agri-chains metabolism  
Semi structured interviews with a large set of stakeholders  
To obtain a « consolidated » metabolism



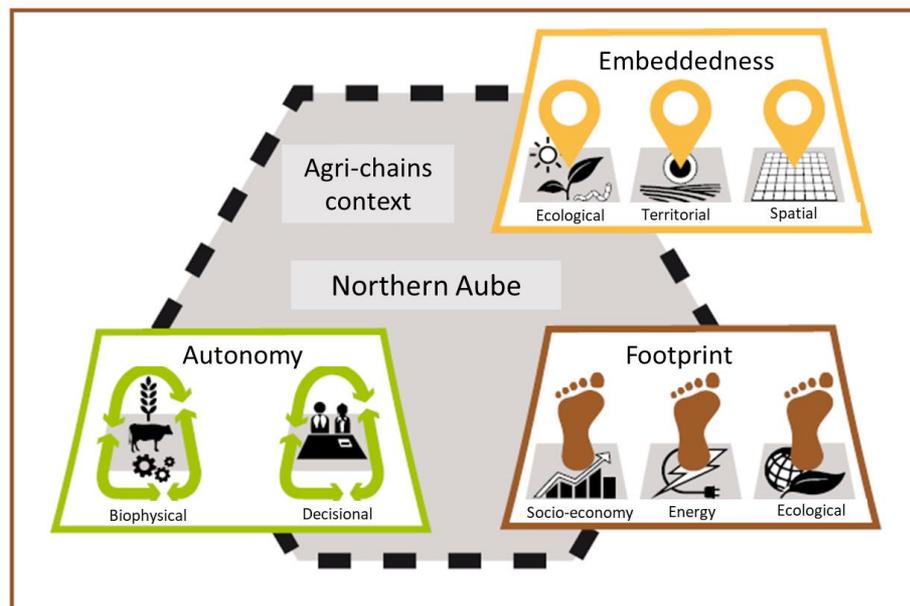
# ➤ Grid of analysis to evaluate agri-chain metabolism



# ➤ Ex. Northern Aube



UAA (2020)	176 512 ha
Farms (2010)	1 434 farms



## Mostly crop production

5 over 10 signs of quality and origin dedicated to livestock productions

## Few organic farms

53% of fodder areas dedicated to dehydration (mainly alfalfa)

## High imports of fertilizers (organic and synthetic)

High exports of barley and beet semi-processed

Livestock products processed outside of the territory

De-centralized headquarters

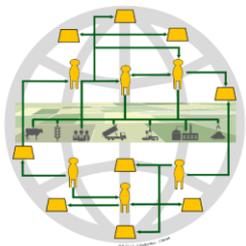
High levels of nitrate in the environment  
**+500% agricultural enterprises producing electricity since 2018**

Increase in jobs in agricultural supply sector



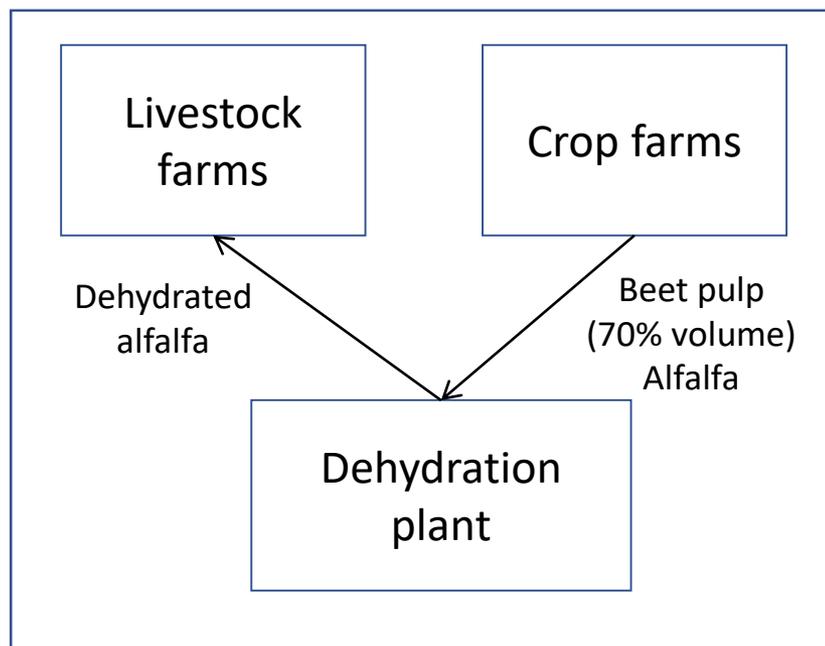
**INRAE**

# ➤ And... trade-off and synergies between agri-chains

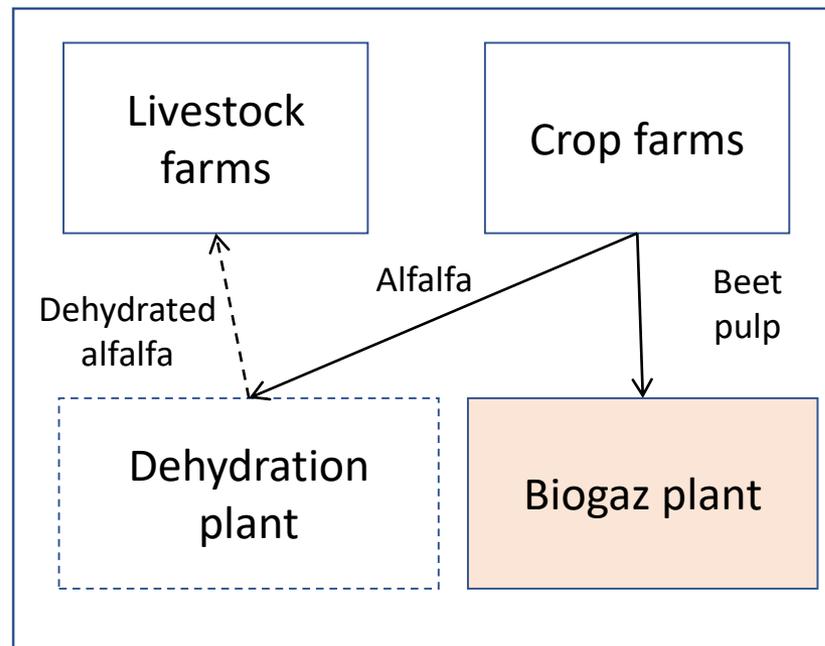


*Northern France example: introduction of a biogaz plant*

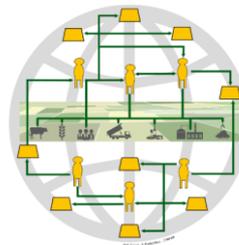
Initial state



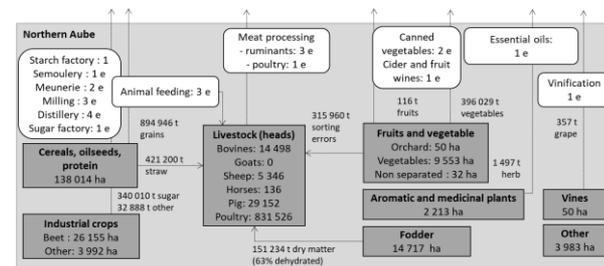
Introduction of a biogaz plant



## ➤ Conclusion



- Iterative process
  - Proto-metabolism to enrich the field work
  - Field work to consolidate the agri-chain metabolism
- Stimulate discussions with stakeholders
  - Organize workshop to foster exchanges between stakeholders on strategic prospective



Marty et al. 2021

Thank you for your attention



INRAE

Interactions between agricultural value chains at local level  
14/04/2022 IFSA conference – GRILLOT et al.

myriam.grillot@inrae.fr

p. 12