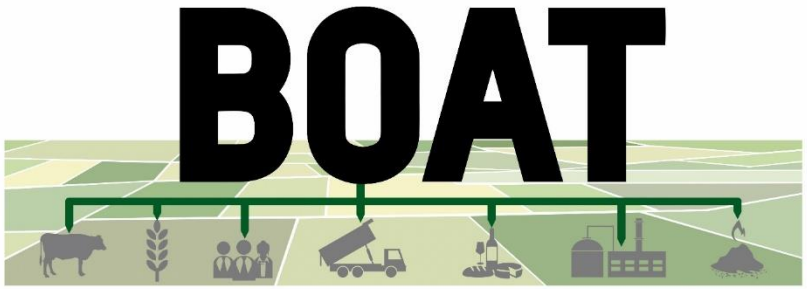
Interactions between agri-chains at local level: a metabolic approach

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



Research projet
(2017-2020)

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

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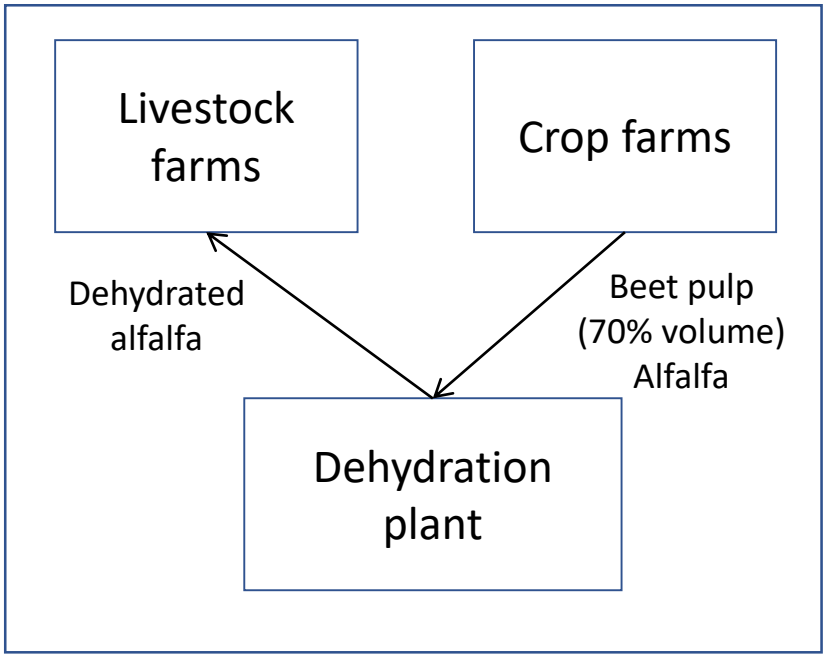
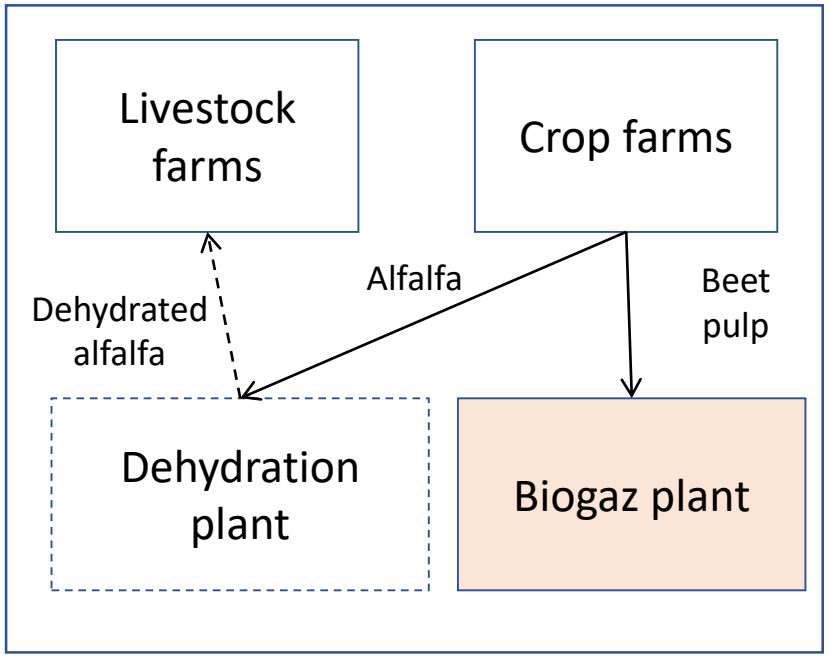
Trade-off and synergies between agri-chains

Northern France example: introduction of a biogaz plant

Initial state



Introduction of a biogaz plant

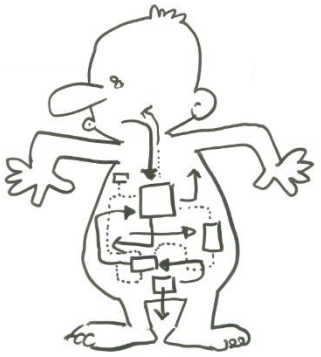


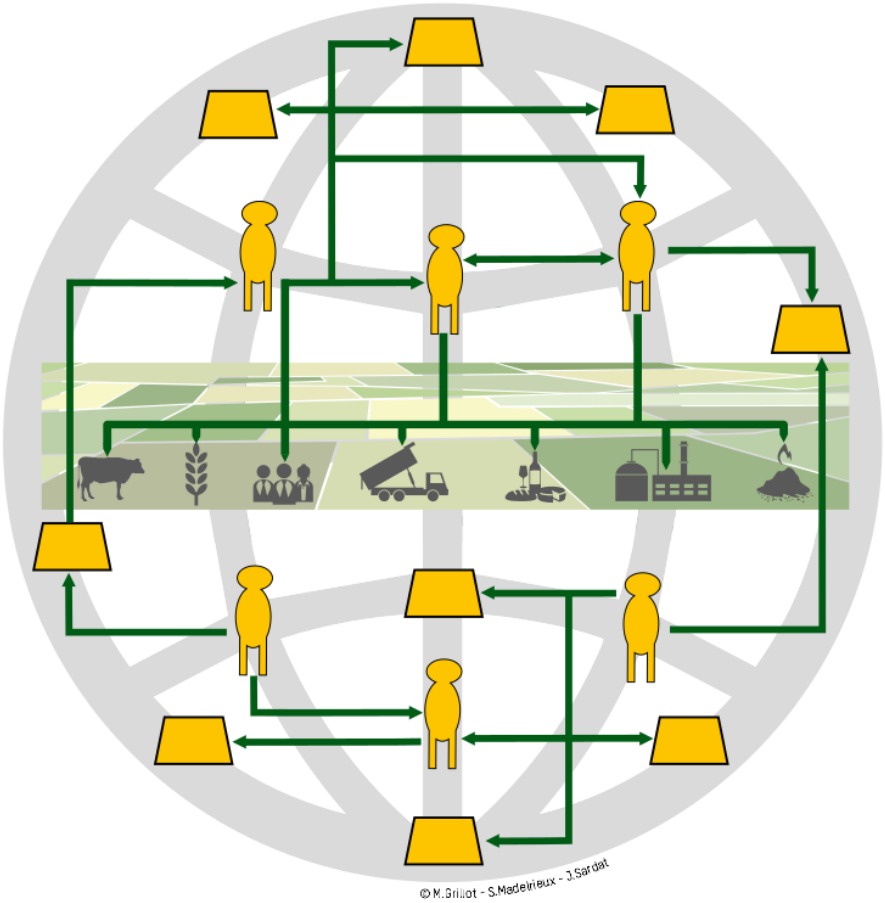
How can we identify trade-offs and synergies between agri-chains?

$\Rightarrow$ How are biomass of agricultural origin managed and used?

Metabolic approach

- Quantify resources/production and flows
- Identify stakeholders





Flows

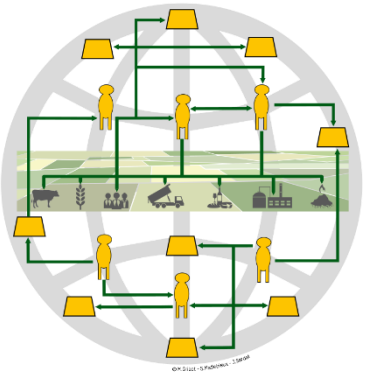
Stakeholders

Resources

Biophysical environnement

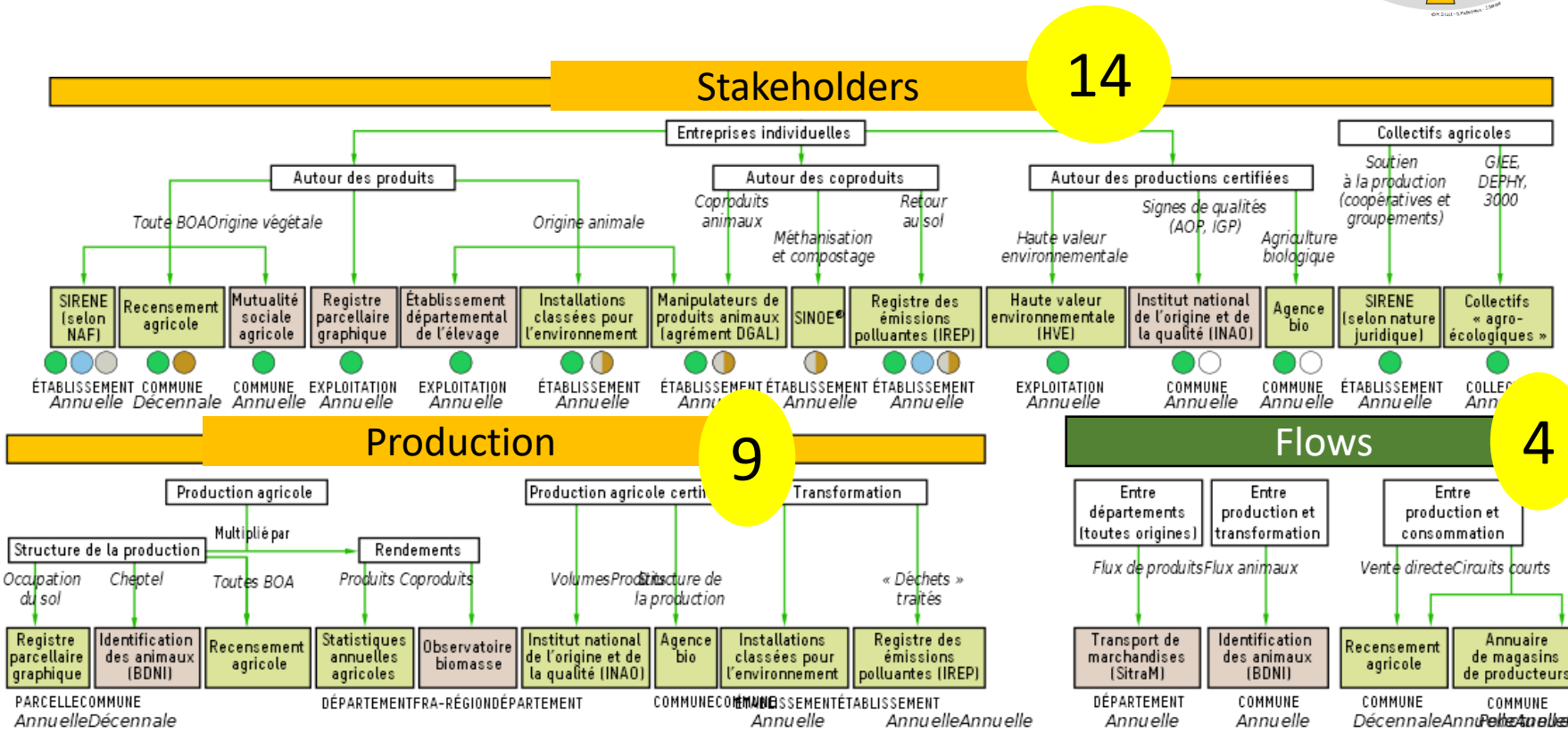
More on socio metabolic research: Haberl et al. 2019

Step 1: use existing data bases



Open-access

Restricted acess



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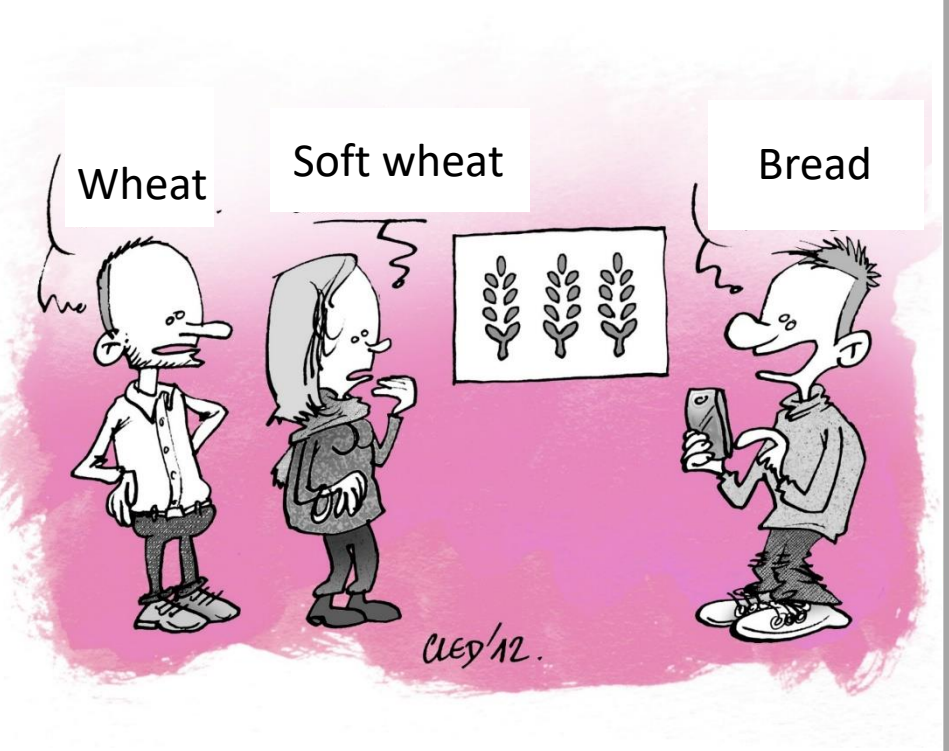
Step 1: use existing data bases facing…

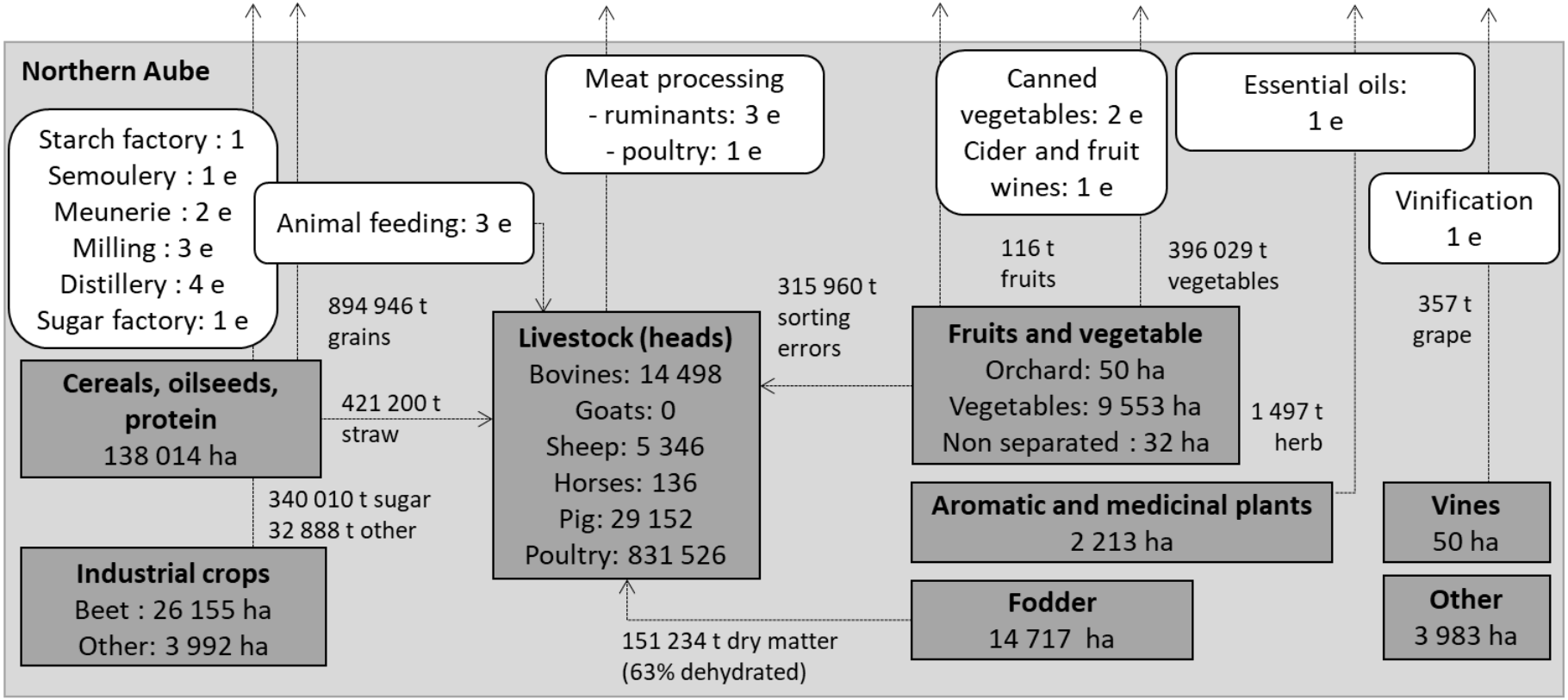
Various nomenclatures / units, etc.

Data availability, statistical and professionnal confidentiality



Step 1: use existing data bases

Make hypotheses through « a proto-metabolism »

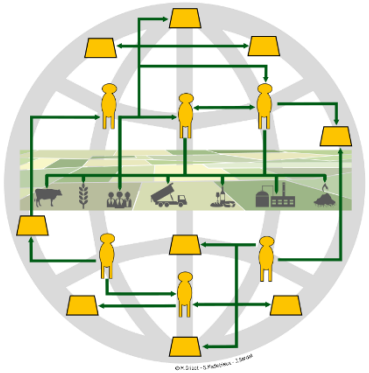


Step 2: field interviews

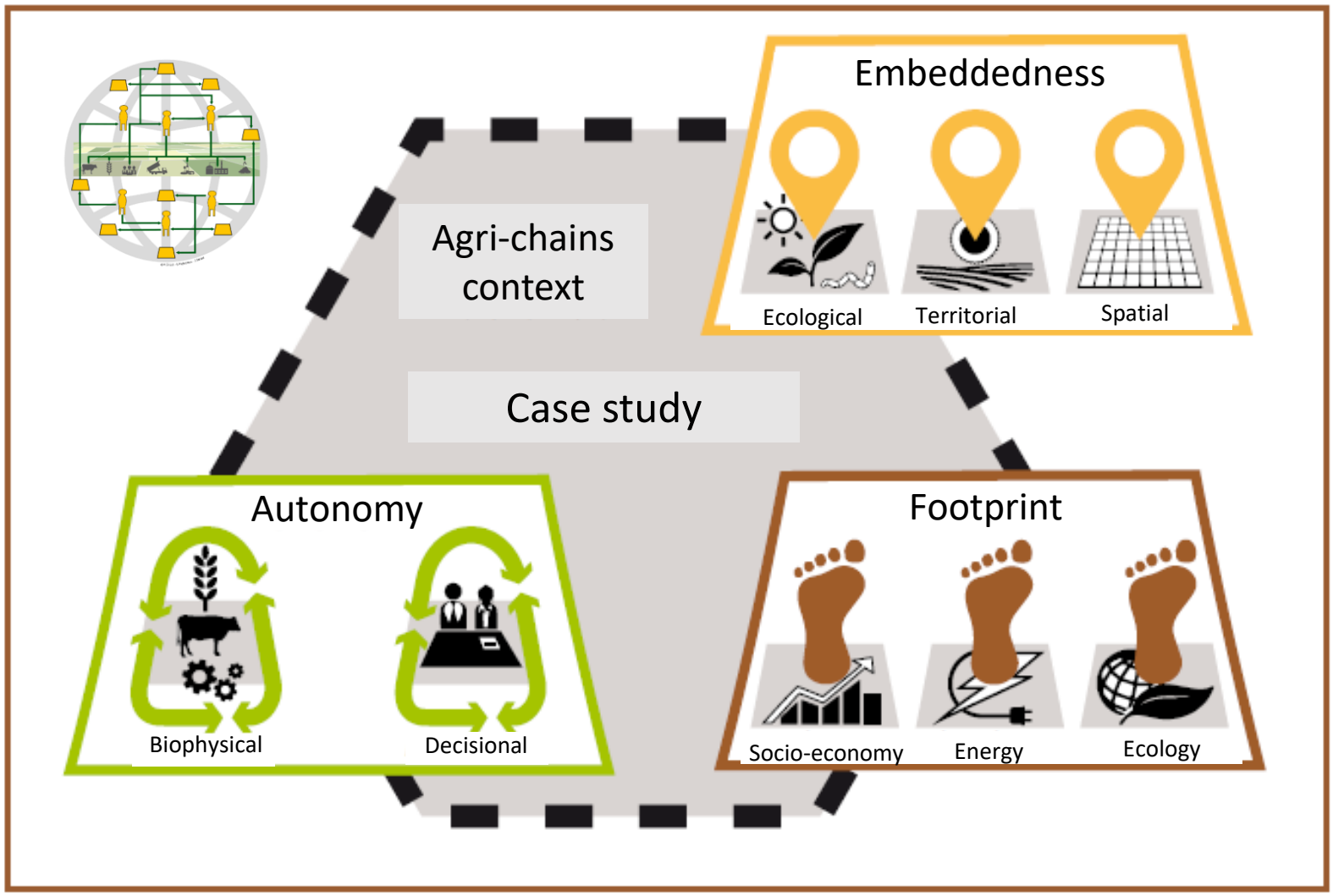
Consolidate the knowledge on agri-chains metabolism

Semi structured interviews with a large set of stakeholders

To obtain a « consolidated » metabolism

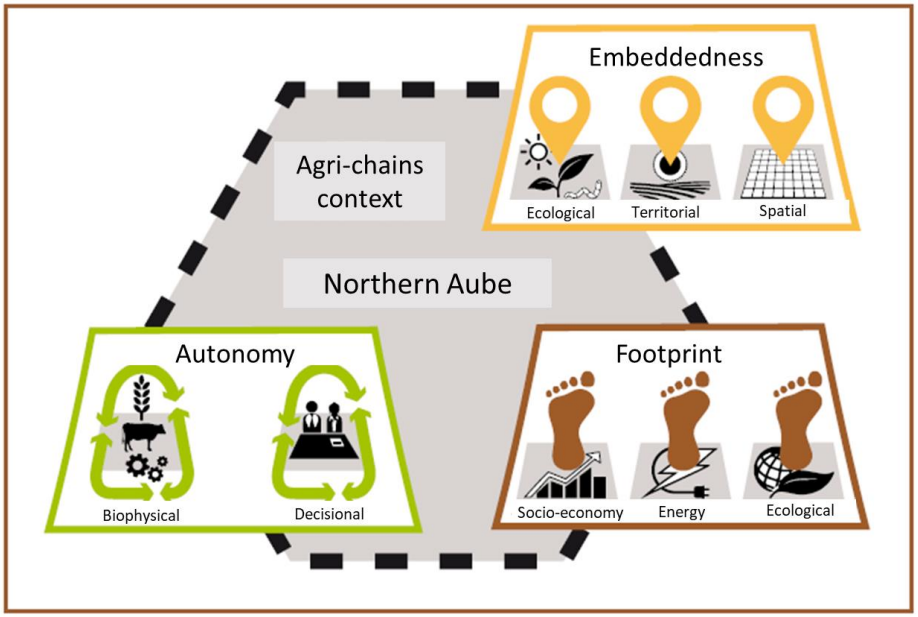


Grid of analysis to evaluate agri-chain metabolism



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 dehydratation (mainly alfalfa)

High imports of fertilizers (organic and synthetic)

High exports of barley and beet semi-processed

Livestock products processed outside of the territory

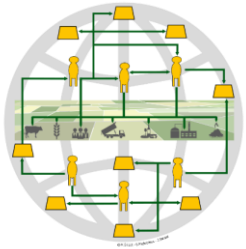
De-centralized headquarters

High levels of nitrate in the environment

+500% agricultural enterprises producing electricity since 2018

Increase in jobs in agricultural supply sector

And… trade-off and synergies between agri-chains



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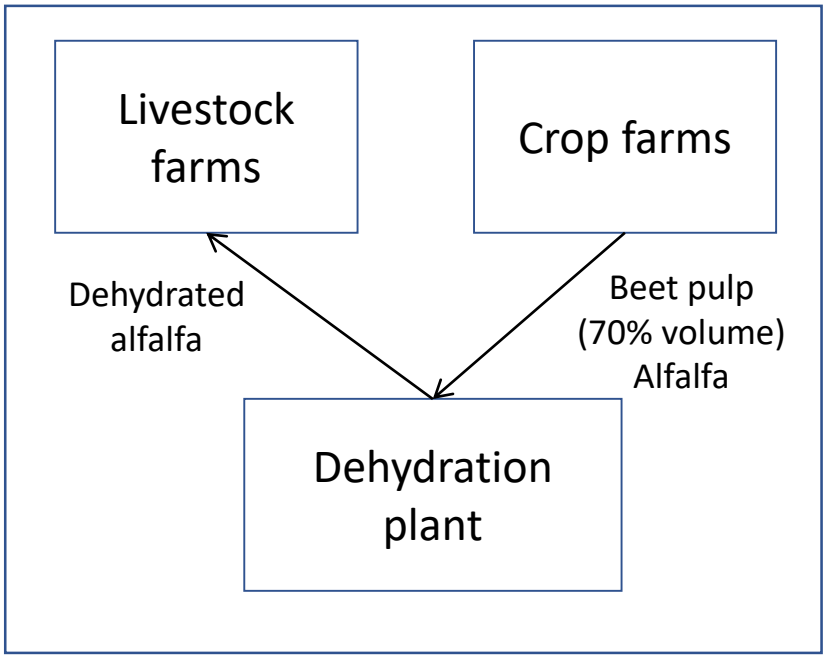
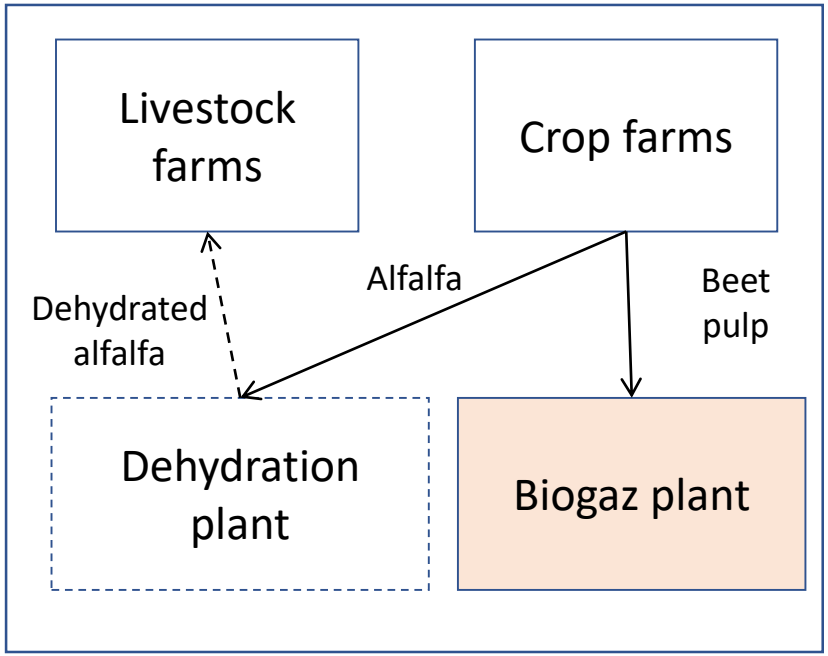
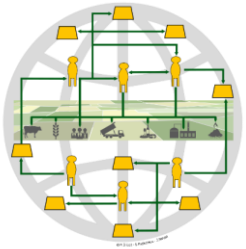
Initial state

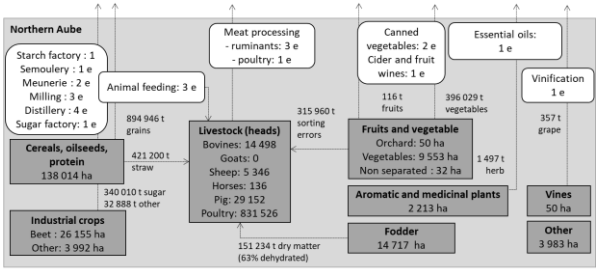


Introduction of a biogaz plant



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

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