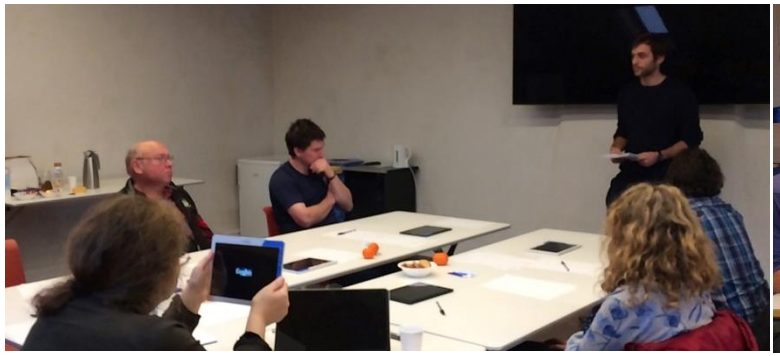
# Innovations for building farming systems resilience: insights from the Canton of Vaud (Switzerland)


Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

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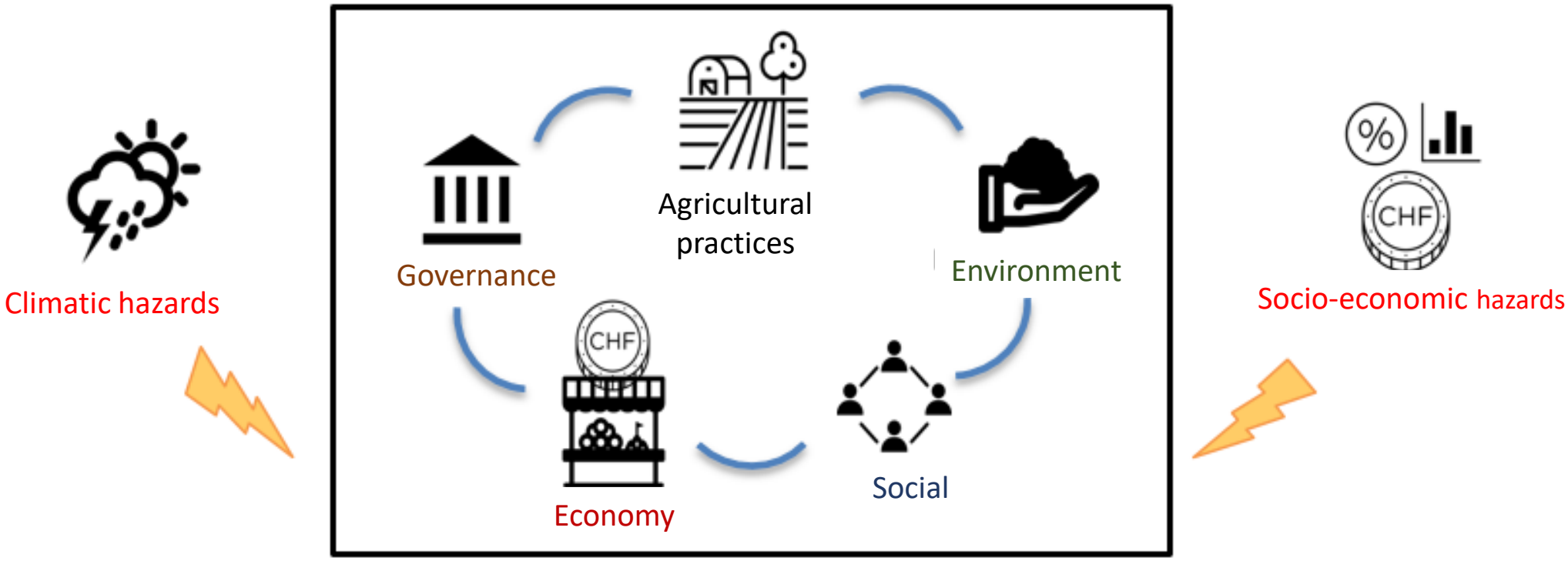
# 1. Objectives

- **Assess** the resilience of Swiss farms from Canton de Vaud using the SHARP tool developped by the FAO and adapted to Switzerland.
- **Identify and spread** solutions/innovations to build resilience at a farm level.

# 2.1 Methodology: conceptual framework



# 2.1 Methodology
## in two main phases

**PHASE 1 – 2016/2017 - pilot**

Adaptation of the SHARP tool

Pilot testing with 25 farms

**PHASE 2 – Canton level**

**Juin 2017 / March 2018**

Assessment: Data collection

=> 100 farms

Resilience building

Final data analysis: March/April 2018

# 2.2 Methodology: tools used

- Stratified sampling using R-studio
  K-means clustering

- SHARP tool to assess resilience
  Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists

- Group workshops
  To identify causes to low resilience and innovations to build resilience

# 2.2 Tools used: SHARP, the 13 behaviour-based indicators

- Socially self-organised
- Ecologically self-regulated
- Appropriately connected
- Functional and response diversity
- Optimally redundant
- Spatial and temporal heterogeneity
- Exposed to disturbance
- Coupled with local natural capital
- Reflective and shared learning
- Globally autonomous and locally interdependant
- Honours legacy
- Builds human capital
- Reasonably profitable

# 2.3 Stratified sampling on 20 farming systems

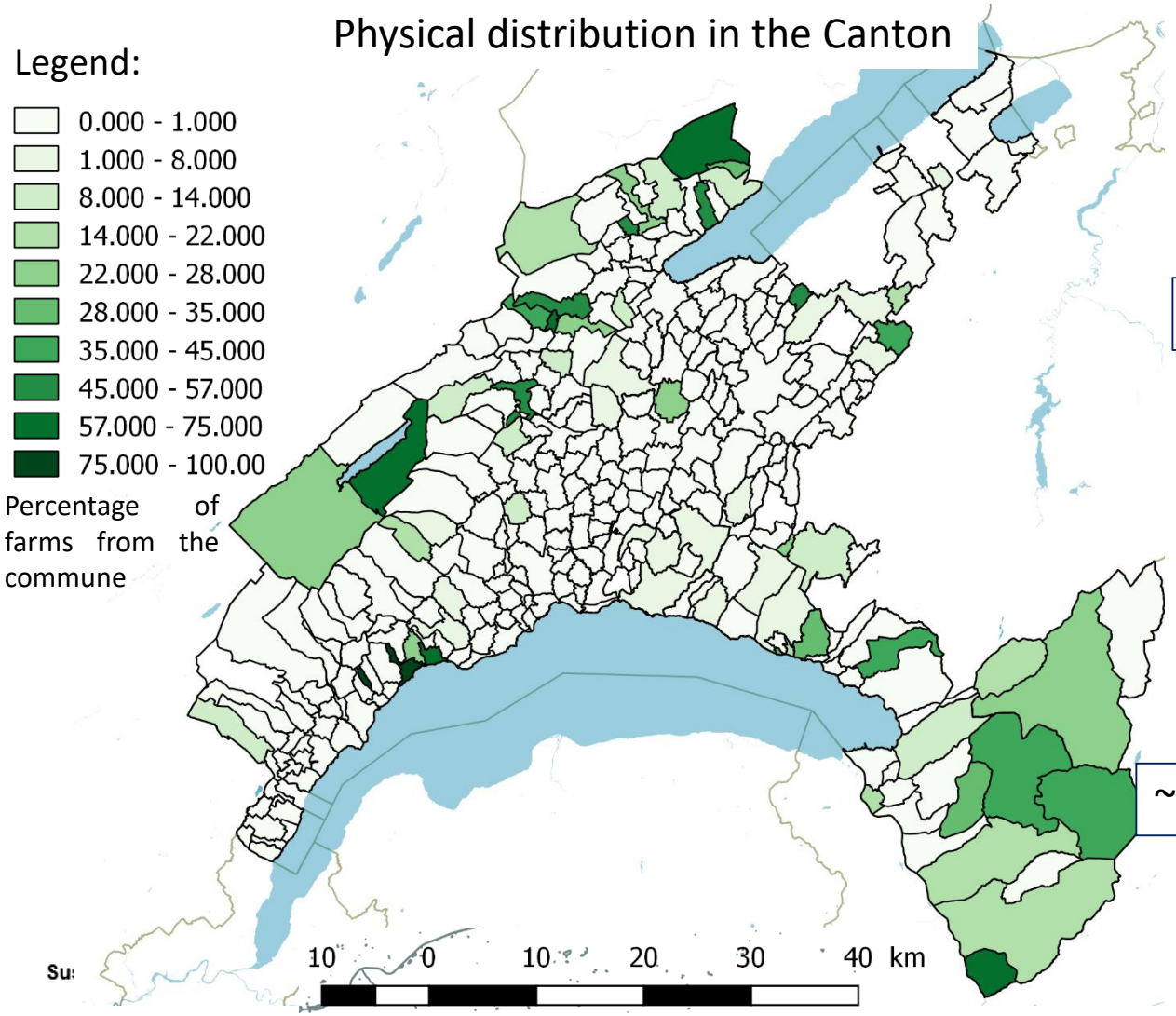
- Data used:

ACORDA
Administration coordonnée romande des données agricoles

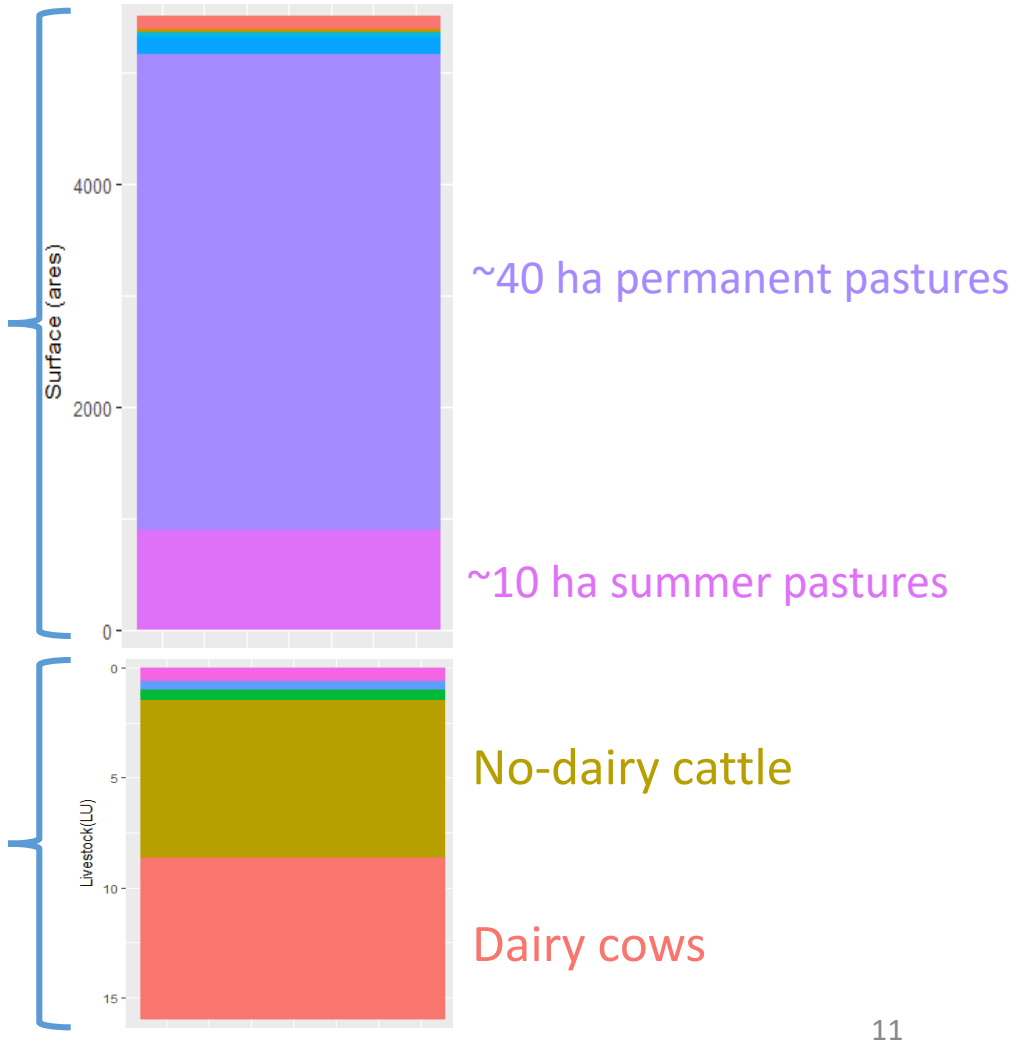
- Variable aggregation (150 -> 20)
  - Based on the technical and economic similarities of different crops and animals on the farming system and their importance at a cantonal level
  - Variables considered: 14 surface variables and 6 animal variables

# 2.3 Sampling: example with farming system 5 (218 farms) – Permanent pastures and bovine cattle

Physical distribution in the Canton



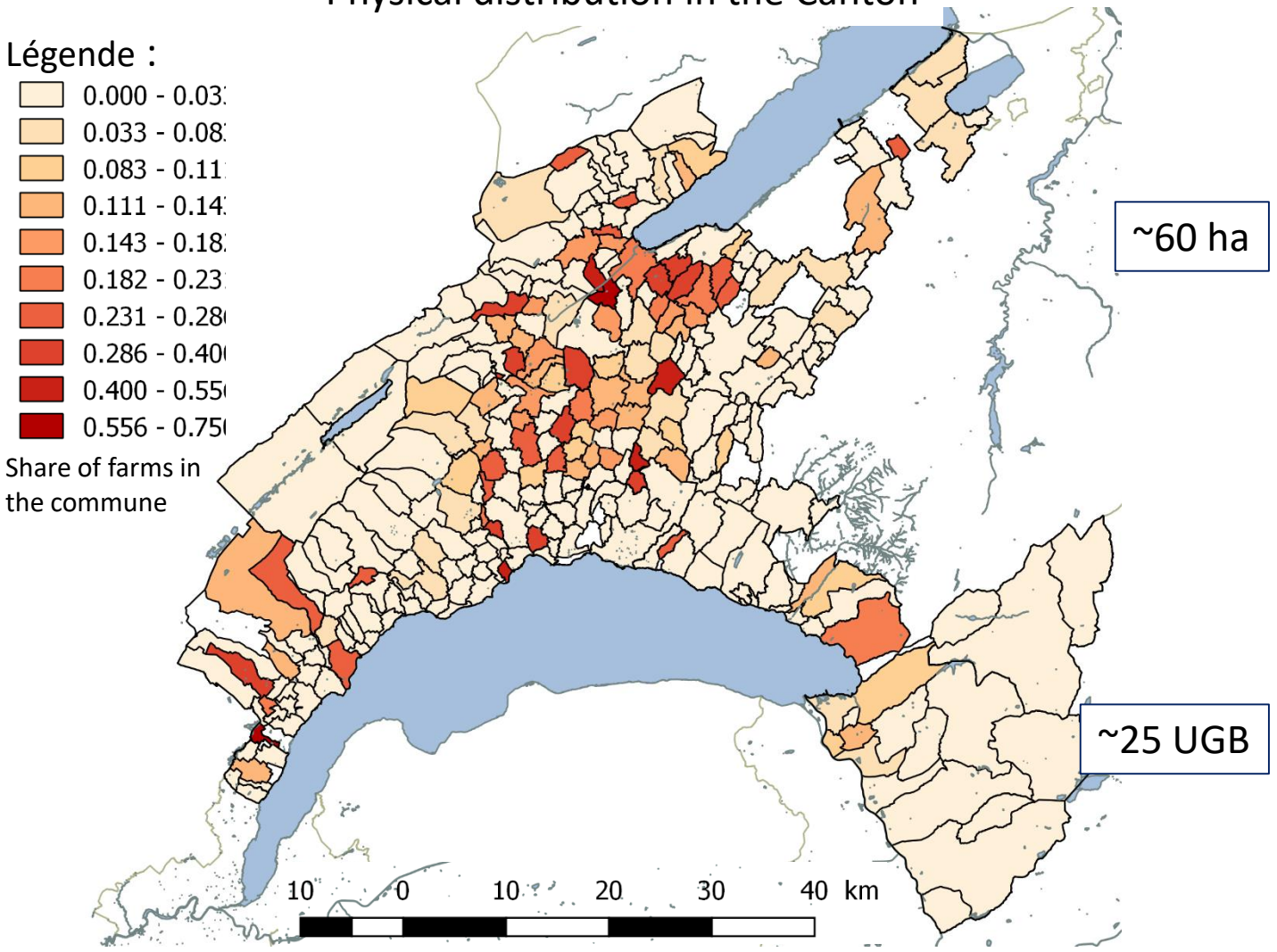

Average surfaces and cattle



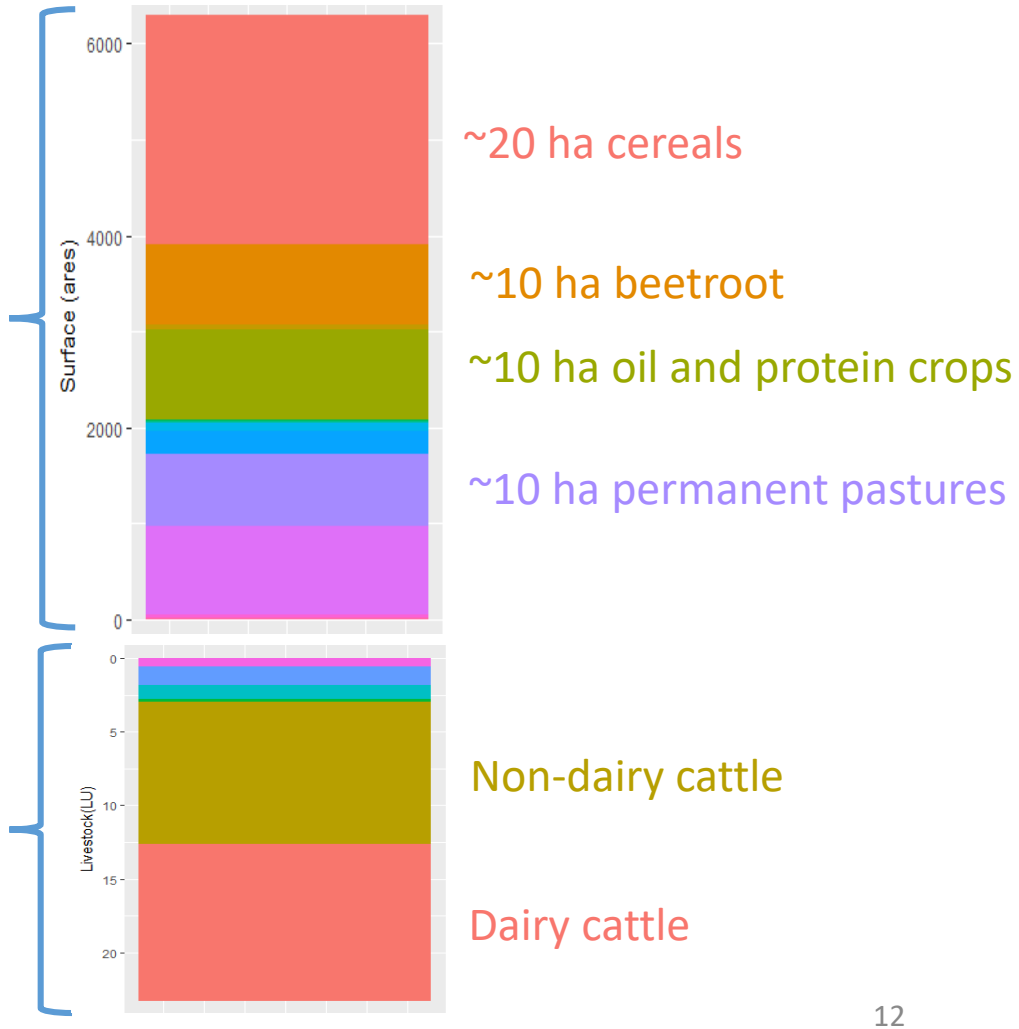

Bio: 18%

# 2.3 Sampling: example with farming system 7 (190 farms) – Large cereal and beetroot growers

## Physical distribution in the Canton




## Average surfaces and cattle

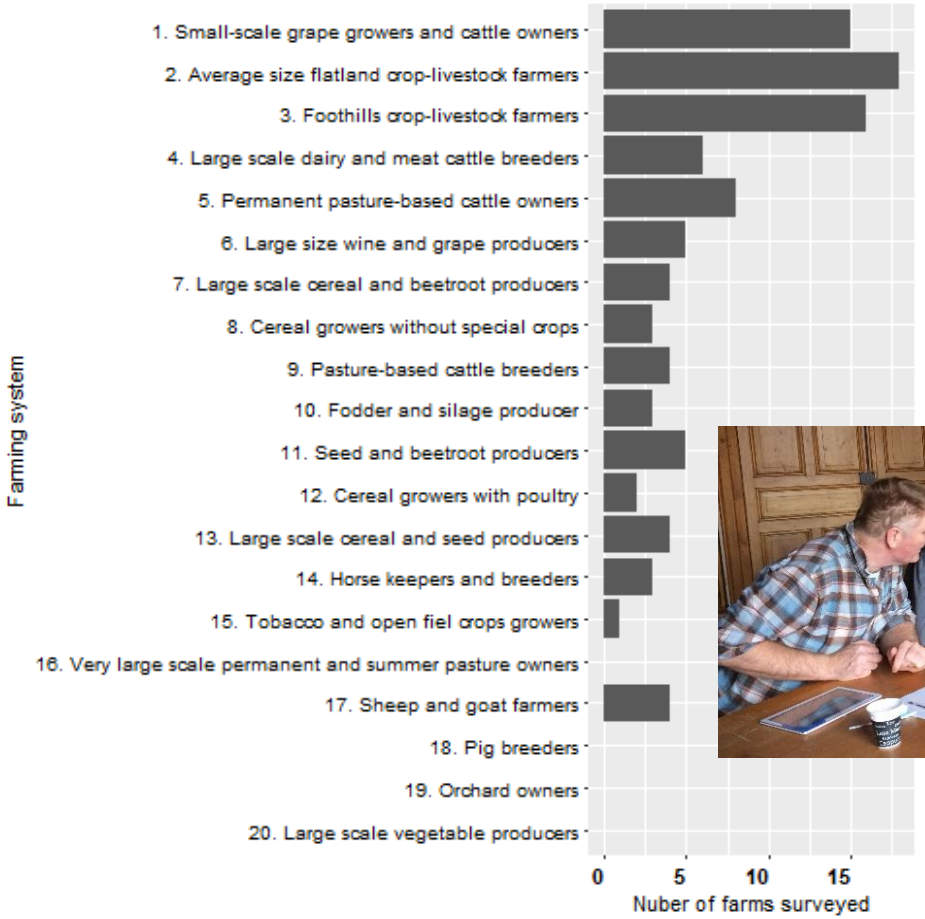



Bio: aucune exploitation

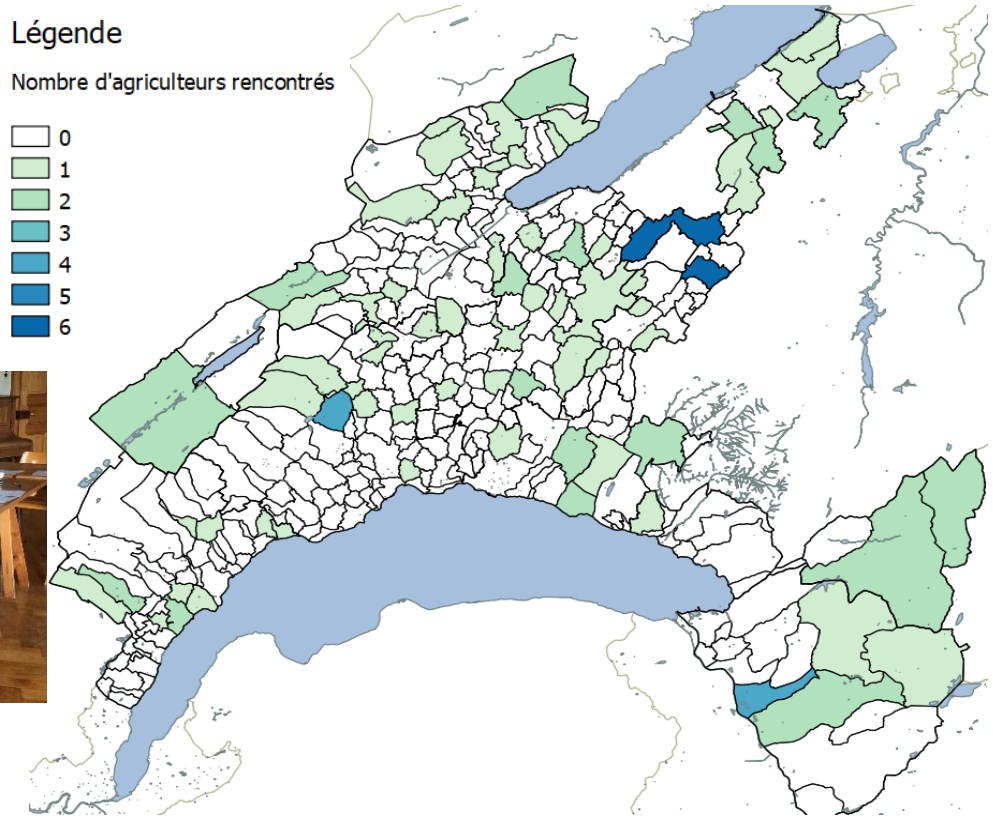
# 2.3 Sampling: distribution of the farms surveyed

84 farms seen through workshops + 16 individual data collections **= 100 participants.**

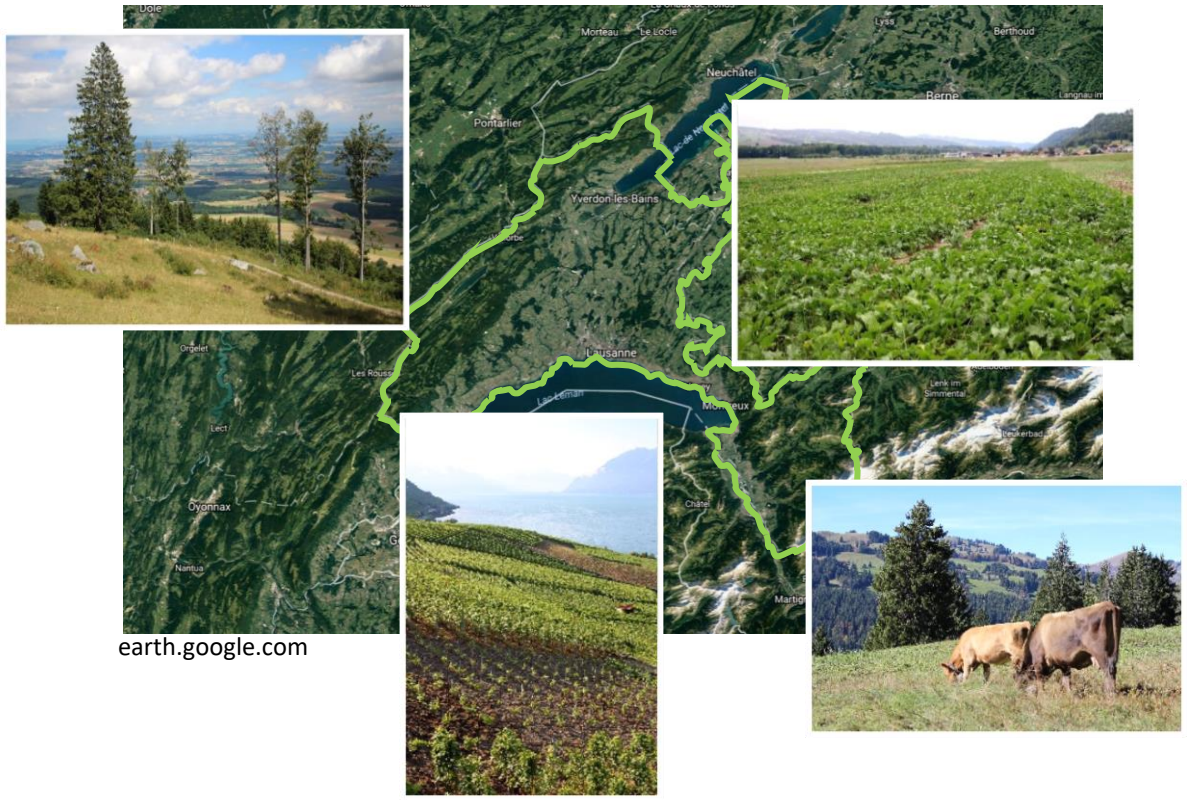
Distribution among the farming systems




Spatial distribution among the communes



# 3. Results




earth.google.com

# 3.2 Three indicators with high resilience scores

| | | | | |
|---|---|---|---|---|
| Socially self-organised | Ecologically self-regulated | Appropriately connected | Functional and response diversity | Optimally redundant |
| Spatial and temporal heterogeneity | Exposed to disturbance | Coupled with local natural capital | Reflective and shared learning | Globally autonomous and locally interdependant |
| | Honours legacy | Builds human capital | Reasonably profitable | |

# 3.2 Five indicators with low resilience scores

| | | | | |
|---|---|---|---|---|
| Socially self-organised | Ecologically self-regulated | Appropriately connected | Functional and response diversity | Optimally redundant |
| Spatial and temporal heterogeneity | Exposed to disturbance | Coupled with local natural capital | Reflective and shared learning | Globally autonomous and locally interdependant |
| | Honours legacy | Builds human capital | Reasonably profitable | |

# 3.3 Causes to low resilience scores

- Too strict, numerous and fluctuating sets of norms.
- A lack of support towards innovative practices in the long term: some ideas are not carried out by fear of policy change or insufficient support.
- A lack of knowledge and training in selling, marketing and contract negotiation, although these are necessary skills to launch innovative and resilient sales channels.

# 3.3 Causes to low resilience scores(2)

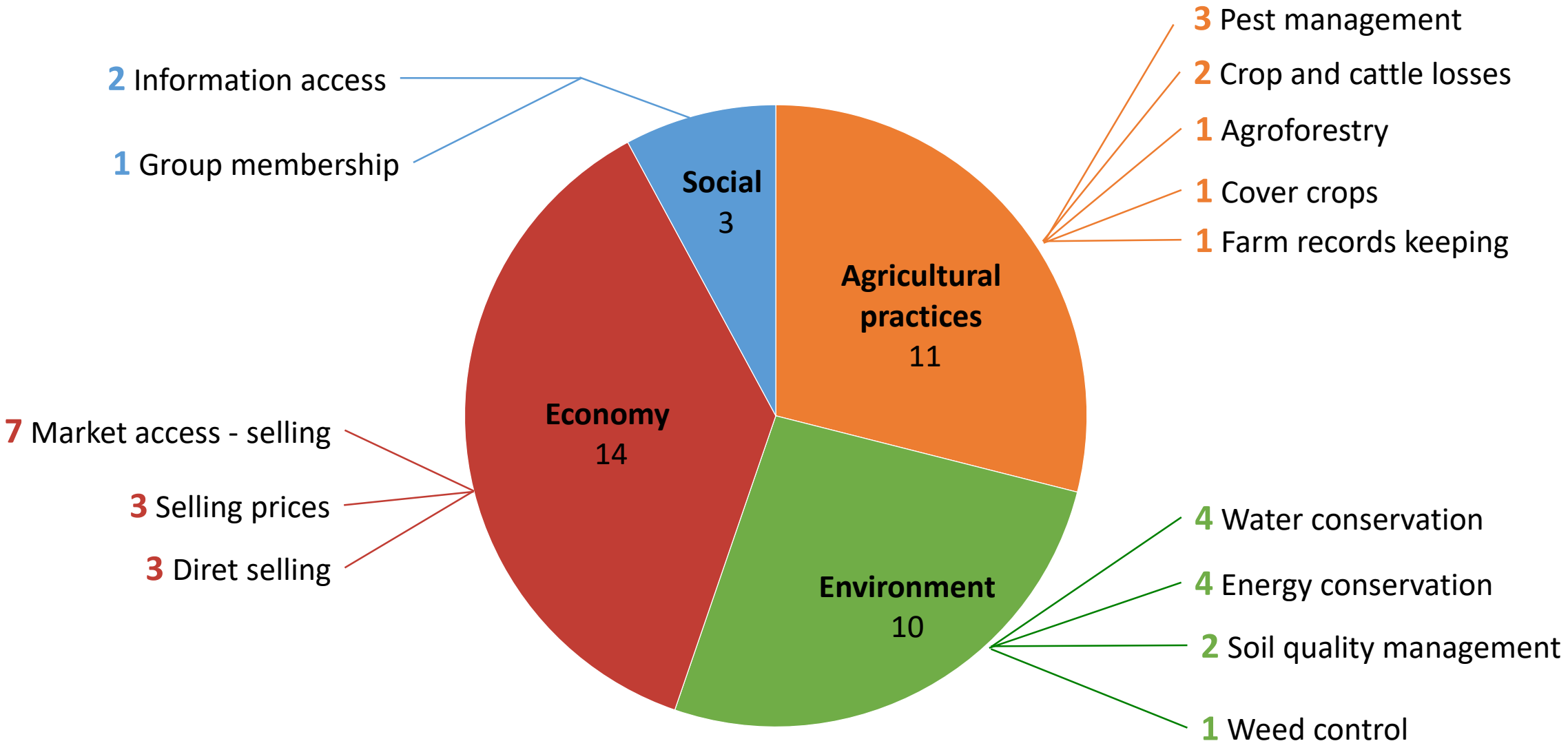
- Lack of practical knowledge and experience on innovative practices.

  *e.g.*: Cover crops are considered interesting but too little economic and agronomic knowledge on this topic limits their implementation.

- High dependence on a few input sellers and output buyers.

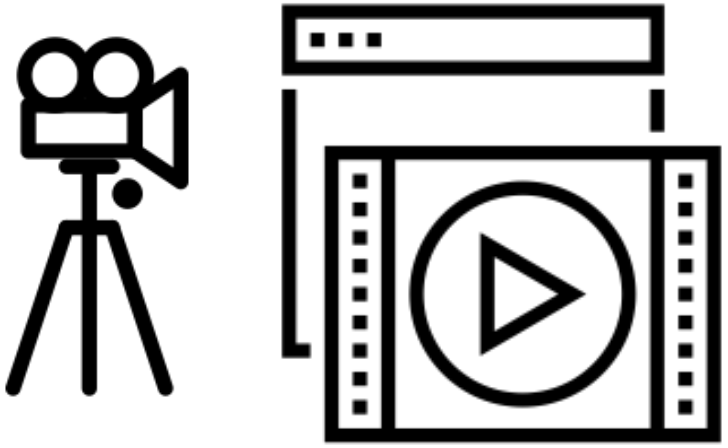
- A high dependence on subsidies which is often considered the main driver of farmers' decisions (by the farmers).

# 3.4 Identified innovations



# 3.5 An innovation platform?

## Internet platform idea



Thematic videos

### Examples of videos:

- **Topic: Pest management**

  ***E.g.*** Fighting pests in beetroot fields:

  **Innovation - Seeding three different varieties** to mitigate risks and ensure a minimum yield and quality

- **Topic: Energy conservation**

  ***E.g.*** Developping solar energy

  **Innovation – Planned and financed investment in solar panels** in Pays d'Enhaut on 170 $m^2$.