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A practitioner-driven methodological framework to assess the sustainability of regional food products

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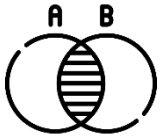
Context

Premise: (Swiss) Consumers want to buy food products* that are …

sustainable  regional

?

Sustainability of Protected Designation of Origin (PDO) products

January – December 2023

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LCA research group

4 PDO producer associations (*Interprofessions*):

LE GRUYÈRE® SWITZERLAND AOP

Vacherin® Fribourgeois SWITZERLAND

Cuchaule AOP

JAMBON DE LA BORNE AOP

BÔUTEFAS AOP

Charcuterie AOP

Swiss PDO/PGI*** association

Suisse. Naturellement. AOP IGP

ETAT DE FRIBOURG
STAAT FREIBURG
STATE OF FRIBOURG

Promotion économique PromFR
Wirtschaftsförderung WIF
Development Agency FDA

FRIBOURG, THE PLACE TO GROW!

Collaboration

Co-financing

(*FOAG, Demoscope report, 2021)

DurAOP project – Goal & Scope

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Assess the sustainability of PDO products

Innovative methodological framework …

… applied to 5 Swiss PDO products …

17/19 producers

Primary data (Questionnaires, interviews)

… to identify entry points to enhance sustainability performance …

… and inform sustainability strategy of PDO producer associations

Icons: flaticon.com

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Methodological framework features

Sustainability of PDO products

- Indicator system development with **emphasis on social aspects**, e.g.
  - Cultural heritage
  - Power asymmetries between actors along the value chain
- Reflect **regional characteristics**
  - ❌ LCC, S-LCA

Practitioner-driven

- **General applicability, while product-specific**
  - Scenario building
- **Communication** adapted to target audience and scope
  - Disaggregated results
  - Different levels of analysis

Practitioner-driven framework

Stakeholder involvement

Framework development process

Step 1: Preparation phase

Methodological framework **objectives**

Step 2: Framework Development

In-depth understanding of PDO and **product-specific sustainability issues**

Step 3: Framework Application

Preliminary results discussions to better understand and **adapt to communication needs**

Applying the LCSA framework

Phase 1: Goal & Scope definition

Definition of
- Objectives, **Expected outputs**
- System boundaries, Functional unit
- Data requirements
- **Pre-Selection of impact categories**

Phase 2: Life cycle inventory (LCI)

- **Scenarios definition**
- **Identification of key actors** for data collection

Phase 3: Life cycle impact assessment (LCIA)

Phase 4: Interpretation of results & Communication

- Identification of **action-oriented** sustainability measures and **strategic-oriented** potential areas of improvement
- Communication of results through **product-specific checklists**

Product-specific assessment

Product particularity: multiple ingredients

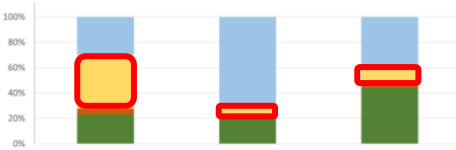
- Multiple hotspots, e.g.
  - Non-renewable resource use: bakery (manufacturing)
  - Climate change: **other ingredients** (milk, butter)
  - Freshwater eutrophication: wheat production

Ingredient sourcing has an influence on impact categories

→ Select local producers who incorporate ecological aspects in their business model

→ Favour local producers (vs. wholesalers) to strengthen local economy

Product-specific assessment



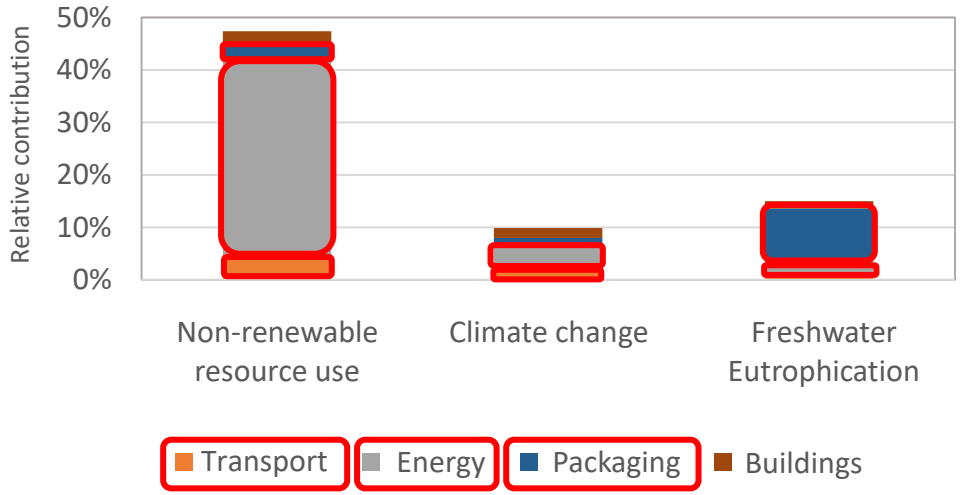
- Important hotspots
  - Energy use

  → **Choice of oven**
  - Packaging (single use paper bags)

  → **Alternative packaging material, optimise use**

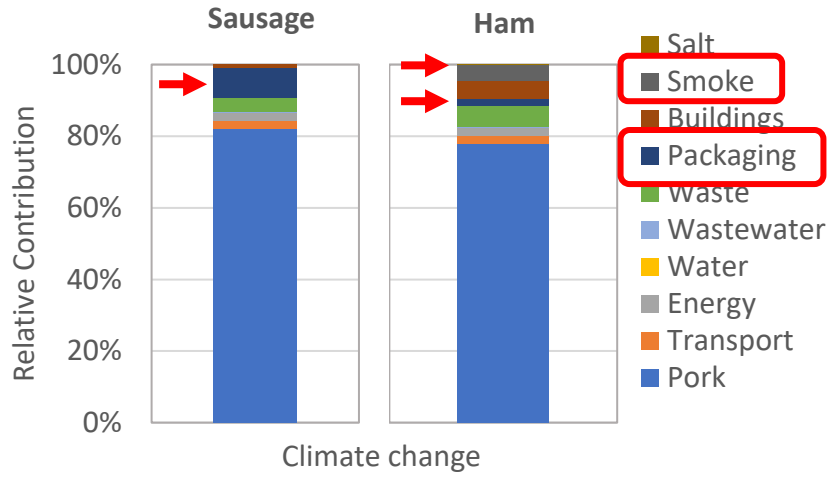
- Transport rather marginal contribution

  → **Optimise transportation**



Product-specific assessment

- **Product** comparison:
  - Meat quality
  - Packaging
  - Smoking technique



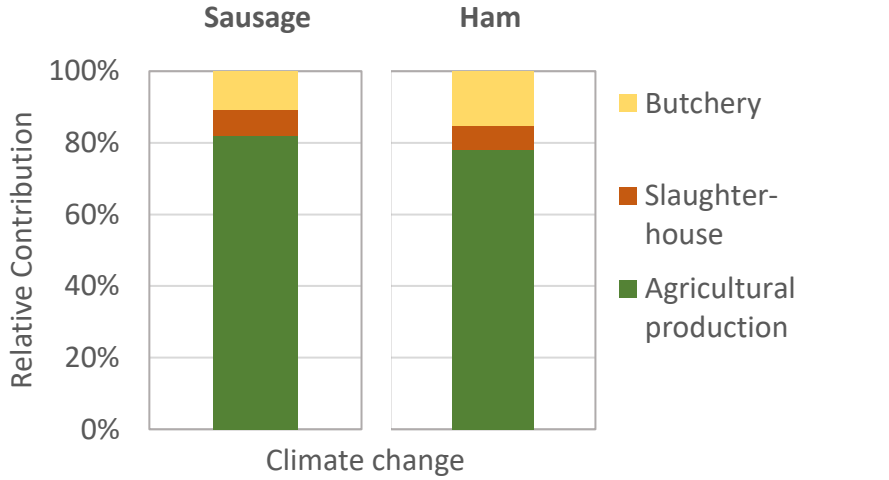
Product-specific assessment

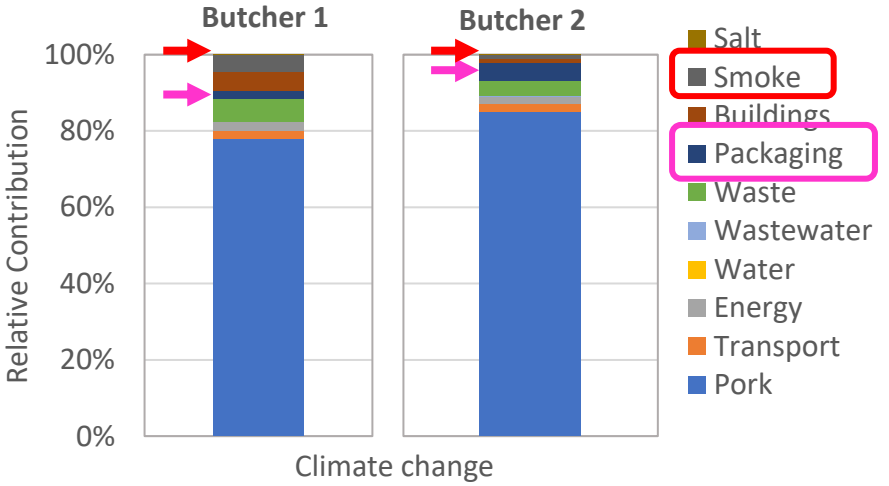
- **Product** comparison:
  - Meat quality
  - Packaging
  - Smoking technique

- **Producer** comparison:
  - Same traditional smoking process, different wood consumption
  - Same products, different packaging use

→ Potential to increase resource use efficiency

→ At producer association level: foster peer-to-peer learning





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Cultural heritage of regional products

- Regional level:
  - Shortage of trainees threatens maintaining cultural heritage
- At company level:
  - Different demographics, different risks of shortage
  - Different level of engagement towards training

Generational change in key PDO professions (regional-level)	
Cheese-making	53%
Bread / *Pâtisserie* production	47%
Meat processing	28%
(Cereal processing	3%)
Agriculture	16%

→ At producer association level: importance of fostering engagement and visibility towards younger generations

Take-home messages

- Incorporate **regional-, product-, and value-chain specific aspects in quantitative sustainability assessment** and provide practitioner-oriented recommendations

- However …
  - **Manufacturing processes** scarcely covered in existing inventories
  - **Data intensity** of covering comprehensive set of sustainability aspects, while
    - Available data ≠ Accessible data ≠ Usable data
  - Interpretation challenges: **lack of reference values** for social and economic indicators, particularly at product-level
  - Economic and mass impact **allocation approaches** particularly ill-suited for PDO products

Thank you for your attention!

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Dimension	Issue	Assessment level & indicators		
		Life cycle stage	Product (or value chain)	Region
Environmental	Climate Change	Global warming potential		--
	Ecosystem quality	Biodiversity loss due to land use; Freshwater eutrophication; Terrestrial acidification; Freshwater toxicity		--
	Natural resources	Water scarcity; Non-renewable resource use		--
Economic	Profitability*	Earned income / family labour unit*; Gross operating margin; Return on capital	--	--
	Liquidity*	Cashflow turnover rate, Dynamic gearing ratio	--	--
	Stability*	Capitalisation ratio; Equity-to-fixed-assets ratio	--	--
Social	Working conditions	Workload	--	--
	Bargaining power asymmetry	--	Value distribution along the value chain	--
	Animal Welfare	Level of compliance with animal welfare programmes	--	--
	Contribution to the regional economy	--	--	Contribution to the regional economy; Short Food Supply Chains
	Cultural heritage	Potential labour deficit; Generational turnover (company-level)	--	Generational turnover (regional level)

DurAOP methodological framework

Dimension	Theme	Issue
Environment	Climate Change	Global warming
	Resource Use (depletion)	Fossil fuel
		Minerals (in-/organic)
		Water
		Land Use
	Ecosystem Quality	Soil Quality
		Biodiversity
		Ecotoxicity
		Eutrophication
		Acidification
		Deforestation
	Human Health	Toxicity
		Ozone (atm., stratos.)
Economic	Profitability	Short-term viability
	Liquidity	Ability to meet financial obligations / solvency
	Stability	Long-term viability
Social	Working conditions	Workload
		Safety at work
	Ethics & Traceability	Animal Welfare
		Public Health
	Governance	Bargaining power
		Inclusivity
		Capability (decision-making power)
	Regional Supply Chains	Contribution to regional economy
		Short Food Supply Chains
	Cultural Heritage	Cultural landscape
		Long-lasting traditional know-how and practices