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Social Life Cycle Assessment: a methodology to evaluate sustainability of cereal uses in Wallonia



Centre wallon de Recherches agronomiques

Alice Delcour – International seminar on social LCA – Montréal, 6-7 mai 2013

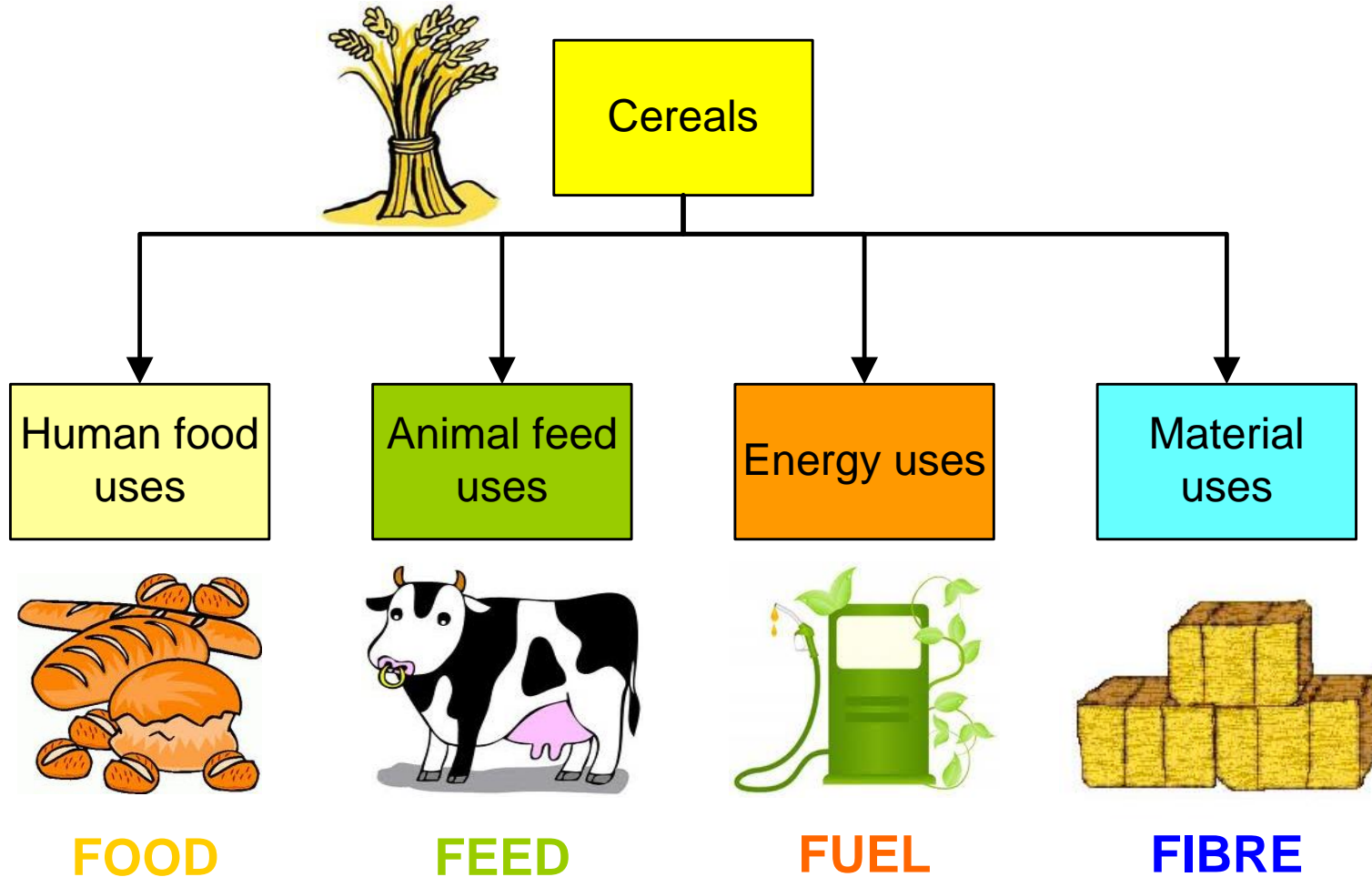
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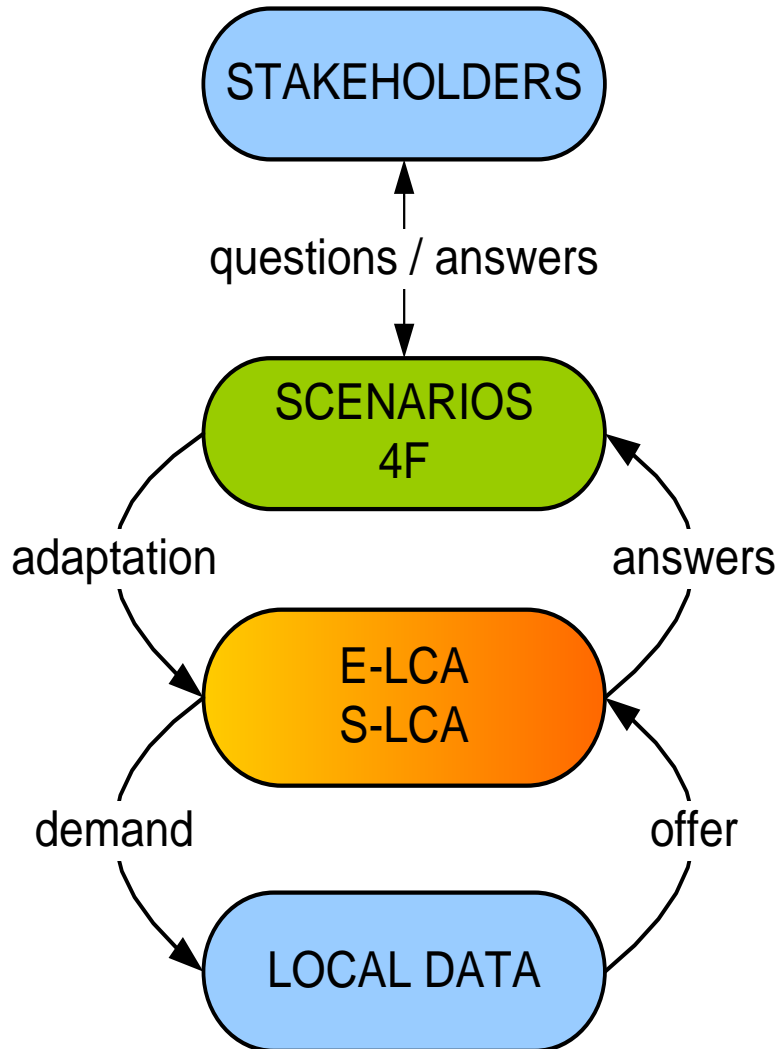
Cereals food and non-food uses: « 4F »



ALT-4-CER: which « F's » of the « 4F » for Wallonia?

Key steps:

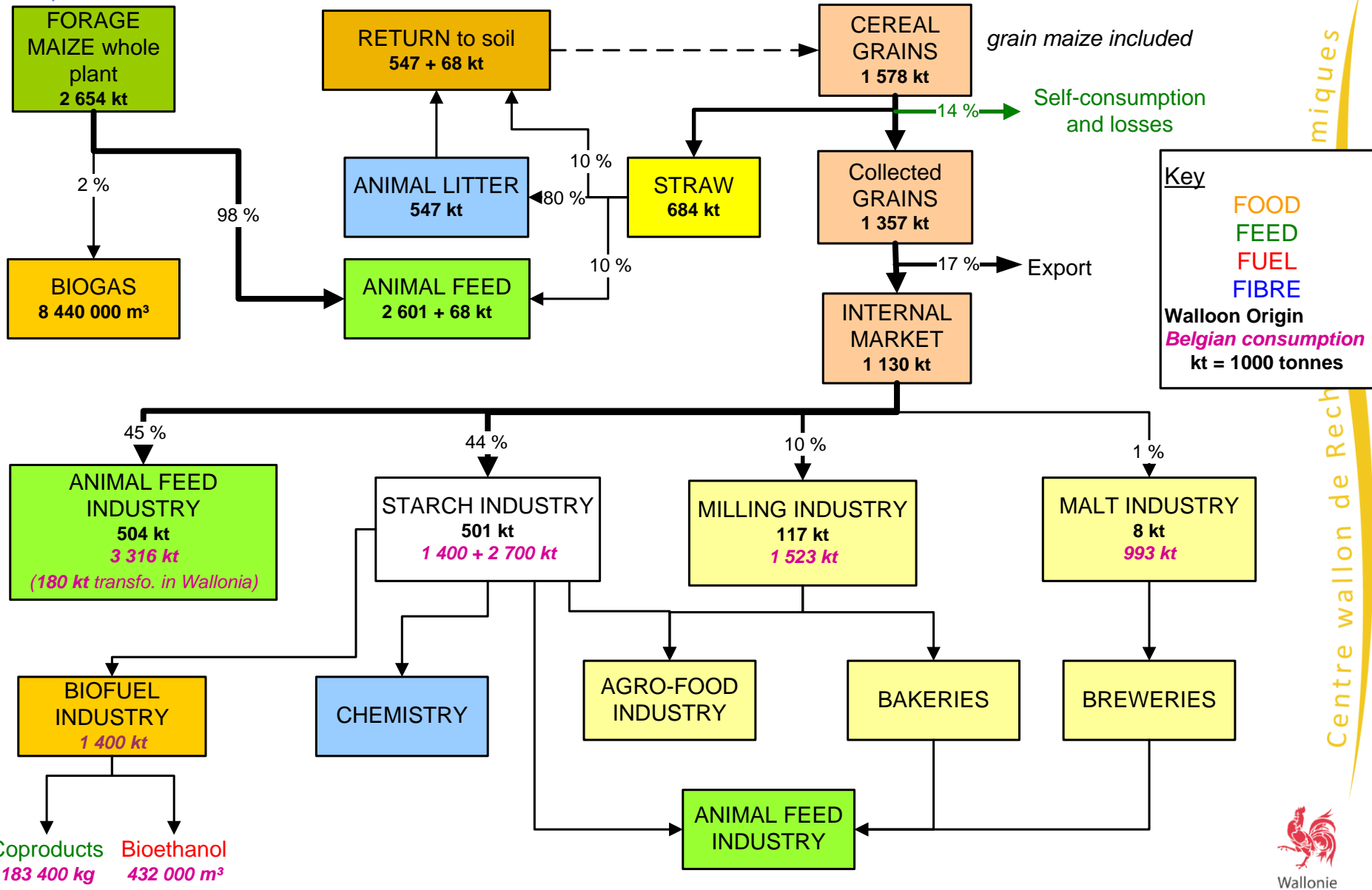
1. To draw the **portrait** of the Walloon cereals, and their current and future/potential uses
 2. To define several **scenarios 2030** acc. to current trends (B-a-U) and contrasting breaks
 3. To develop **environmental and socio-economic LCA** methodologies fed with **local data**
 4. To integrate environmental and socio-economic aspects through **multi-criteria analysis** with **stakeholders**
- To provide clues for most **sustainable** and **pertinent** uses of the cereal resources in Wallonia





ALT4CER

Walloon cereals: 2010



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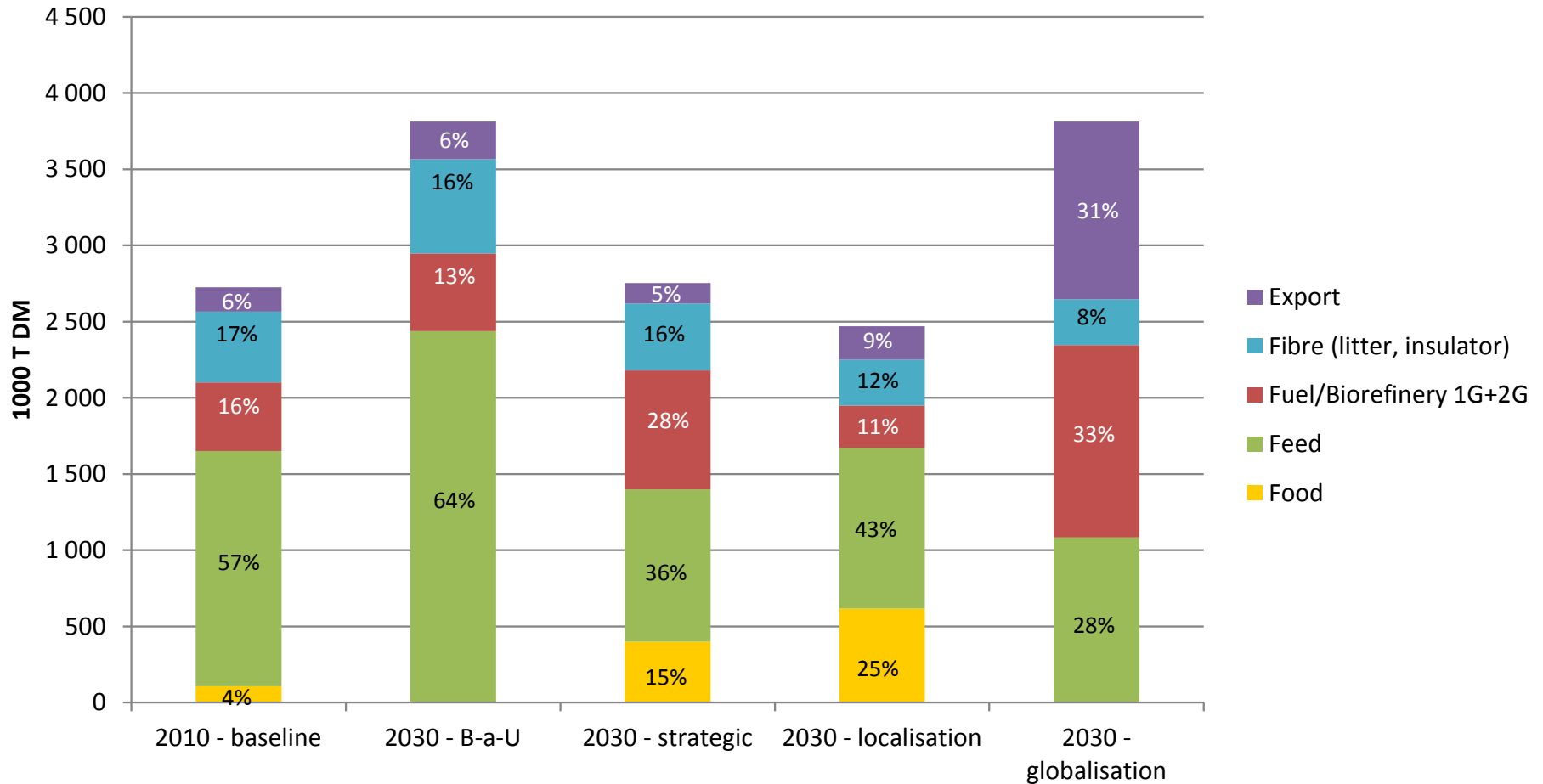
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→ 4 contrasted scenarios for potential future uses:

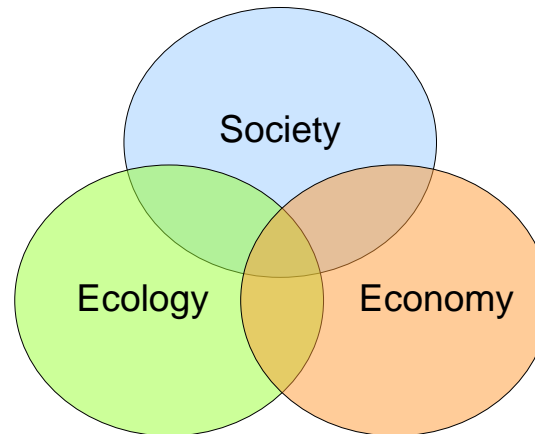
- Defined with **stakeholders'** support;
- Based on current **trends** and contrasting **breaks**;
- Key **hypotheses**: climate change, political choices, population growth, animal products consumption, etc.

1. **Business-as-Usual**: current trends extrapolated from past 15 years
2. **Strategic**: environmental, economic and social optimization of current system
3. **Localisation**: development of new cereal conversion units in Wallonia + increased autonomy
4. **Globalisation**: massive export + focus on high added-value products (biorefinery, bio-based chemistry)



→ Cover the 3 pillars of sustainable development

→ **Common objective:** evaluate environmental and socio-economic **consequences** of potential changes in the uses of Walloon cereals by 2030, in comparison with current situation (2010)



Environmental LCA → identify **regional** differences regarding the **cultivation** step:

- (New) cropping practices;
- Machinery characteristics & fuel consumption;
- Direct field emissions assessment;
- Inputs management;
- Animal feeding & husbandry;
- etc...

+ **Conversion** processes based on existing facilities

Scenarios analysis with S-LCA

- Stakeholders categories

- Workers
- Companies
- Farmers

- Impact subcategories

- Workings hours
- Health and safety at work
- Local employment
- Added value creation

- Impact categories

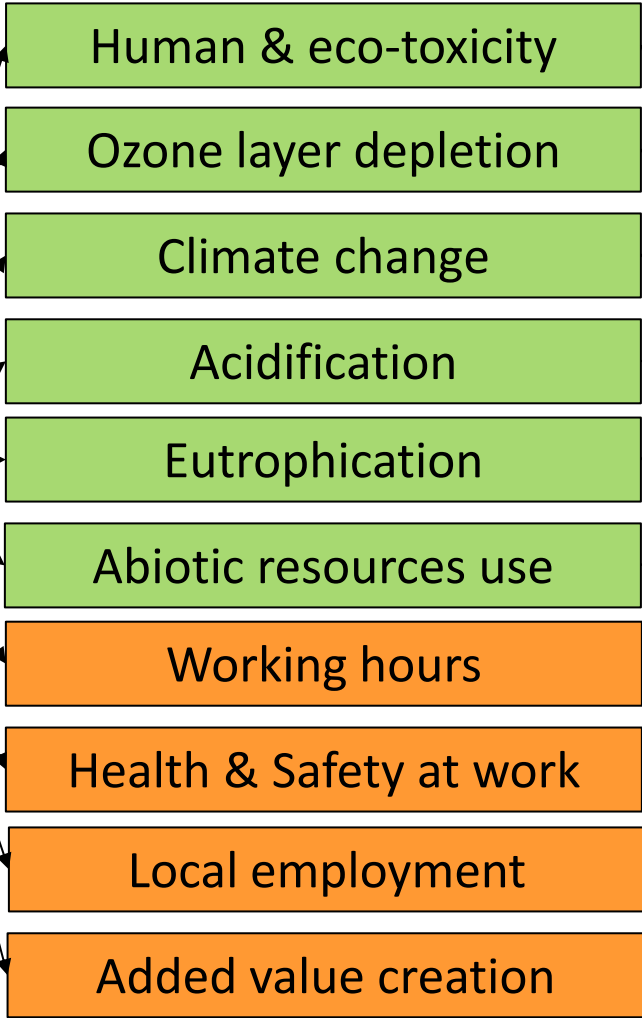
- Working conditions
- Socio-economic repercussions



- Working conditions: interviews:
 - Using methodology **Bilan Travail** (production step):
 - Developed by INRA in order to assess **work types** and **share** for animal rearing systems
 - To be adapted for crop systems
- Use **farms' accounting data** collected at the Walloon Region level (FADN-like) (production step)
- Conversion step: data collection from existing **facilities**

- **Integrate** environmental and socio-economic impacts (E-LCA & S-LCA results)
- **Involve stakeholders** (producers, policy makers, consumers):
 - **Identify** most relevant impact categories, group/prioritize
 - (**Weight** into a global performance indicator?)

LCI data



Subcategories

Impact categories

Integration

E-LCA

S-LCA

→ Key features of the project:

- To involve local **stakeholders** in all steps (scenario building, data collection, impact weighting)
- To use **local data** → for local issues

→ Answer key questions raised today in human Societies:

*“What type of agriculture do we want for tomorrow?
Is it ethically, environmentally and economically
sustainable to dedicate cereals resources to other uses
than human food?”*

Thank you for your attention!



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