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Session 5 – Theater 9

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Are there Environmental Benefits from Feeding Pigs with Peas?

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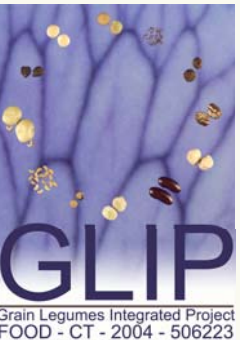

EAAP 2008 - 59th Annual Meeting of the European Association for Animal Production, Vilnius

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Objectives and Methodology

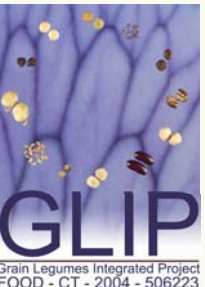
Objectives:

Evaluate the environmental impacts of animal production systems including feedstuff production with

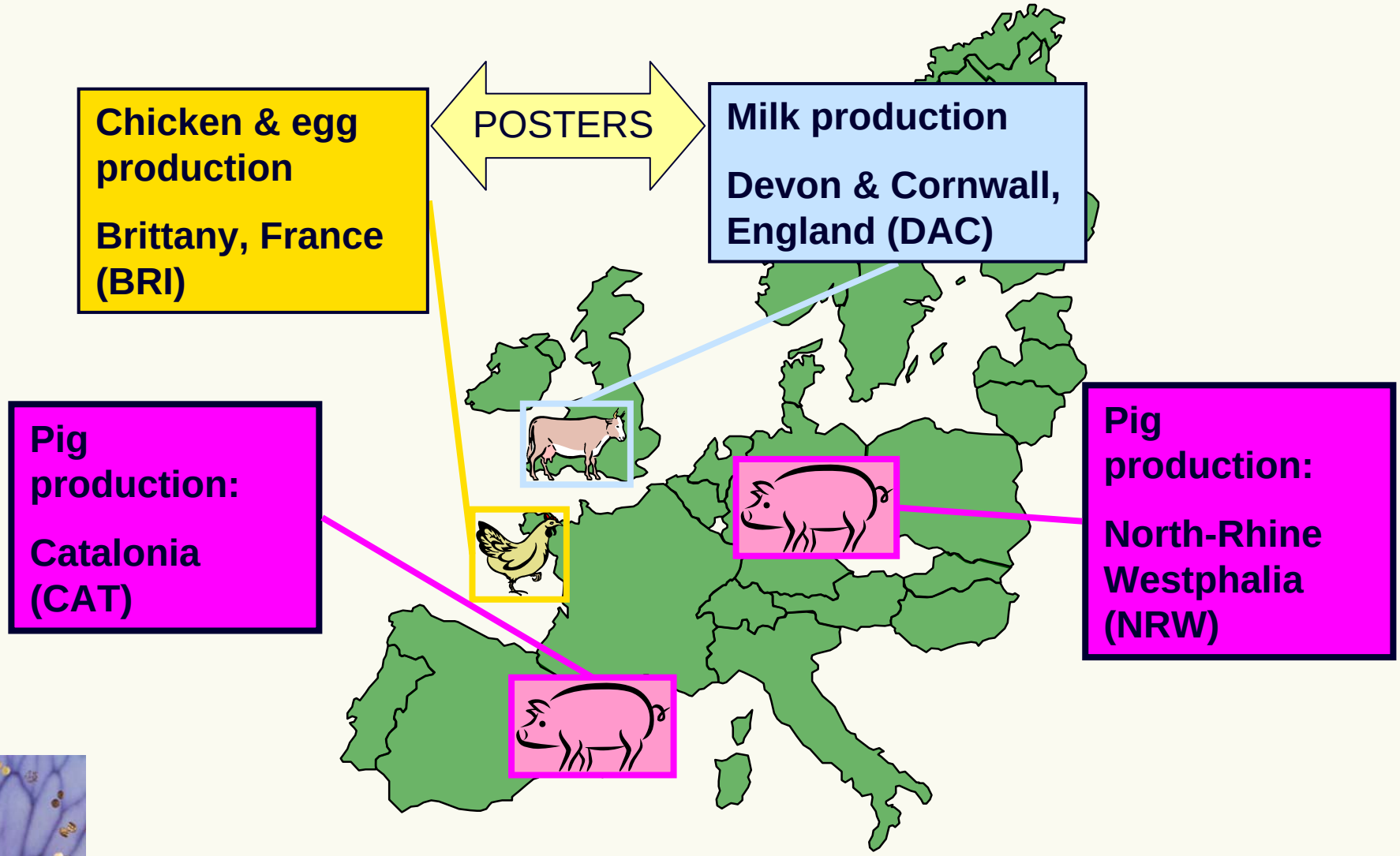
- *different feeding strategies* and
- *different origins of feeds*

Methodology:

Life cycle assessment (LCA): “from cradle to grave”, i.e. from extraction of resources to production and finally disposal or recycling of waste.



ART Case study regions

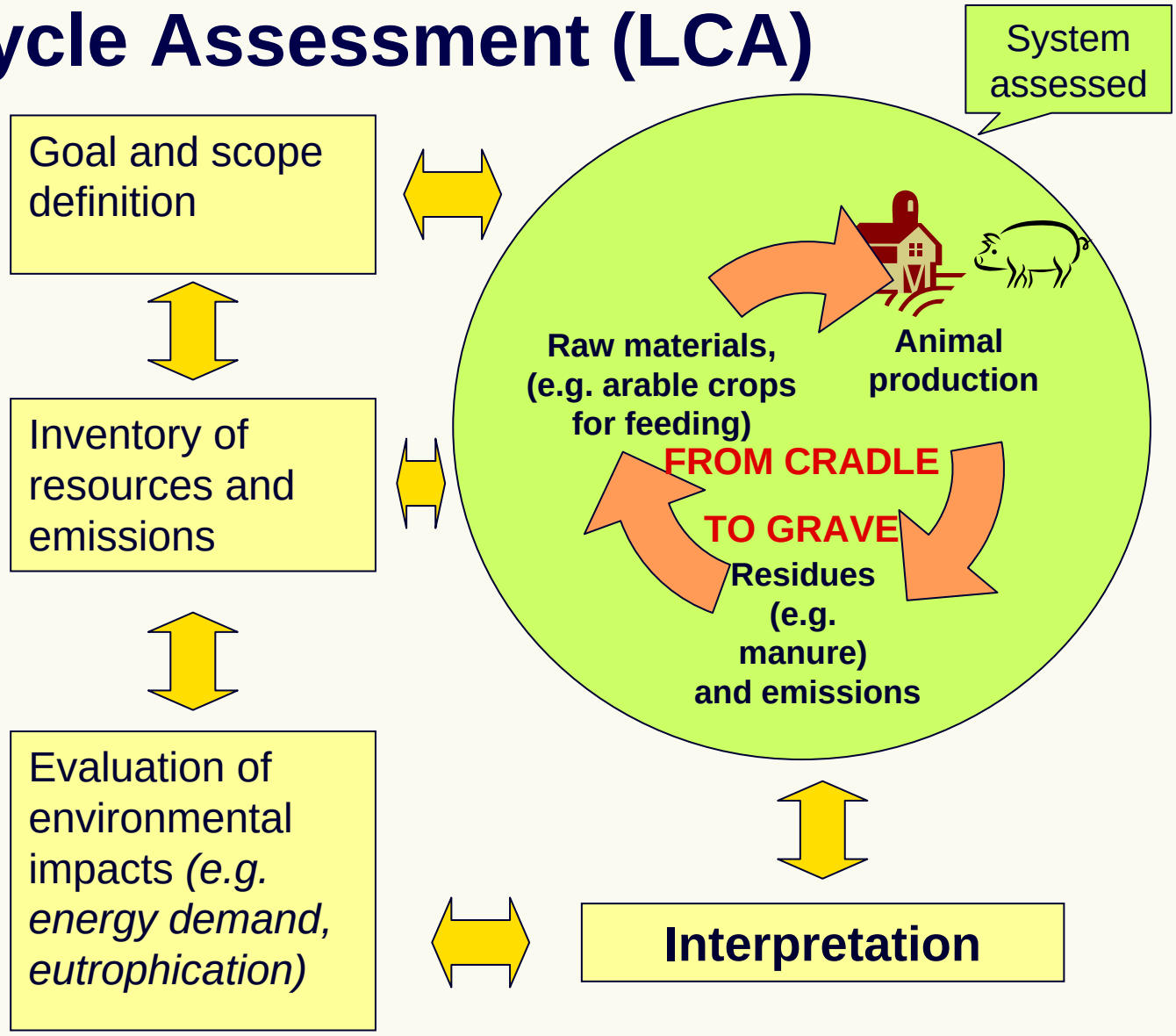


GLIP
Grain Legumes Integrated Project
FOOD - CT - 2004 - 506223

ART Life Cycle Assessment (LCA)

LCA is:

- an **environmental management tool**
  - *to optimise processes (identification of hot spots)*
  - *to choose the best option (comparative LCA)*
  - *described by ISO 14040 and 14044*



Materials and Methods

Data:

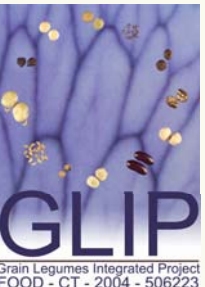
- for feed formulas:
  - *economic optimization models by our GLIP WP2.2 partners,*
- for transports and feedstuff origins:
  - *Statistic reports, web research*

Calculation Tool:

- «SALCA» (=Swiss Agricultural Life Cycle Assessment) by Agroscope Reckenholz-Tänikon Research Station ART

Functional unit:

- 1kg pig (live weight)



Definition of feed formulas for pigs

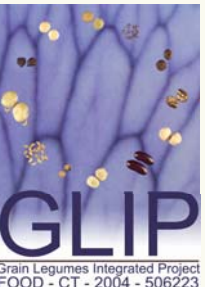
- **4 alternatives**:

  - ***SOY (standard)**: **mainly** soya bean meal, cereals and maize, balanced with other ingredients (e.g. rape seed meal, sunflower meal, cassava, citrus pulp, palm oil) and mineral feed*

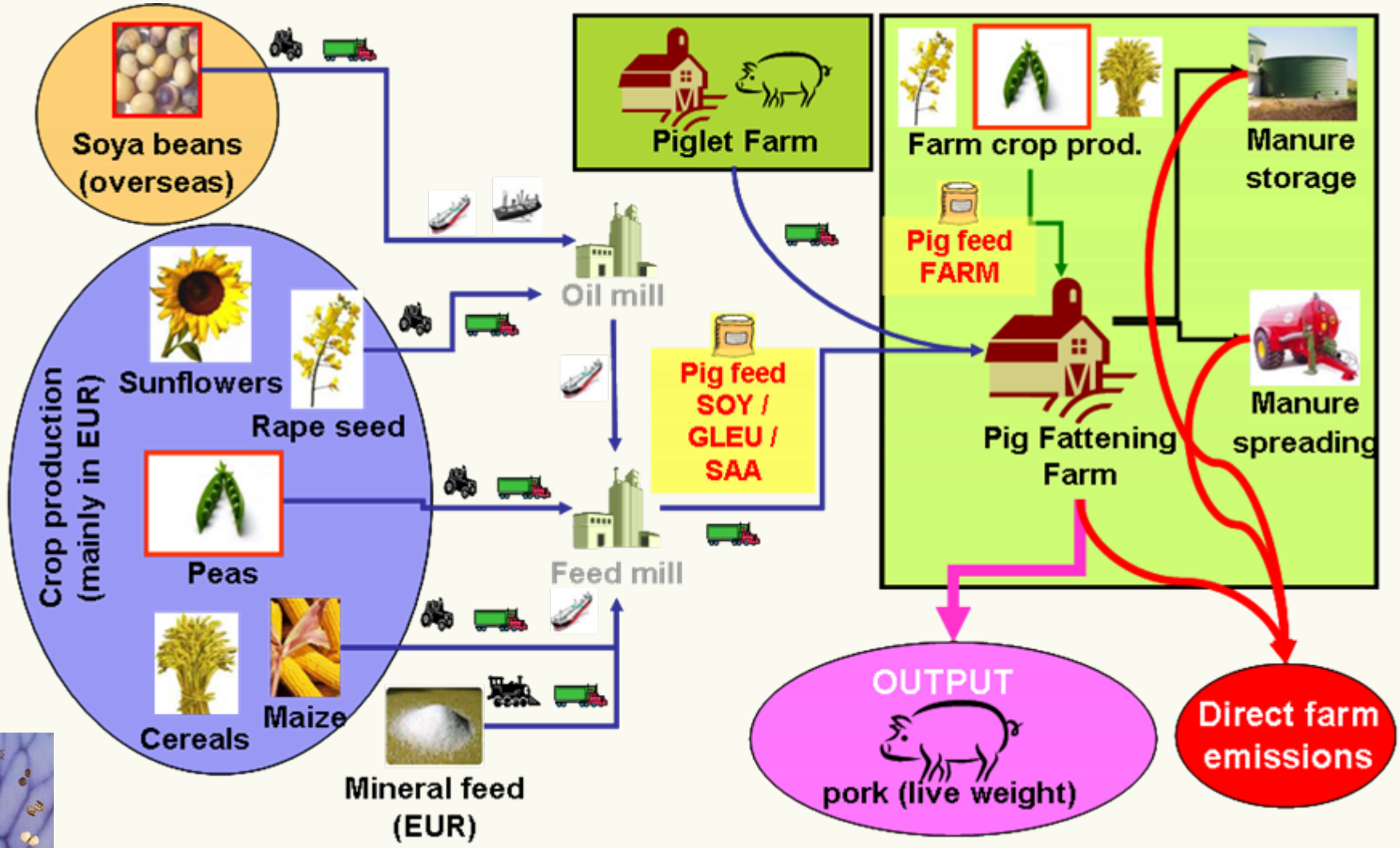
  - ***GLEU (Grain Legumes EUrope)**: soya bean meal is mostly **replaced** by peas, rape seed meal and sunflower meal*

  - ***SAA (Synthetic Amino Acids; only in NRW)**: GLEU formulas with **higher** share of synthetic amino acids*

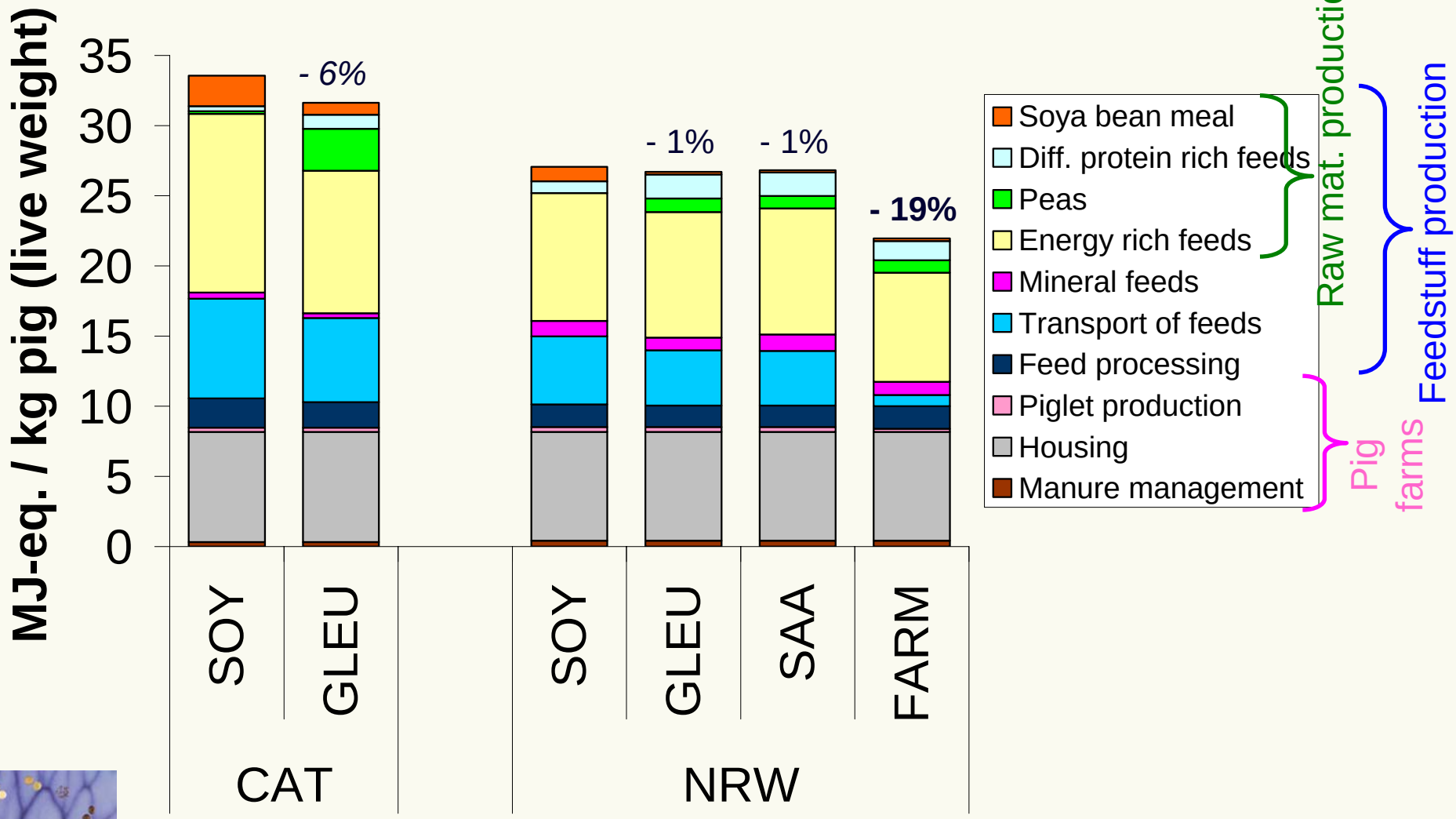
  - ***FARM (only in NRW)**: **simplified** feed formulas based on GLEU, with few ingredients that are produced on-farm (i.e. peas, rape seed, wheat, barley) plus mineral feed*



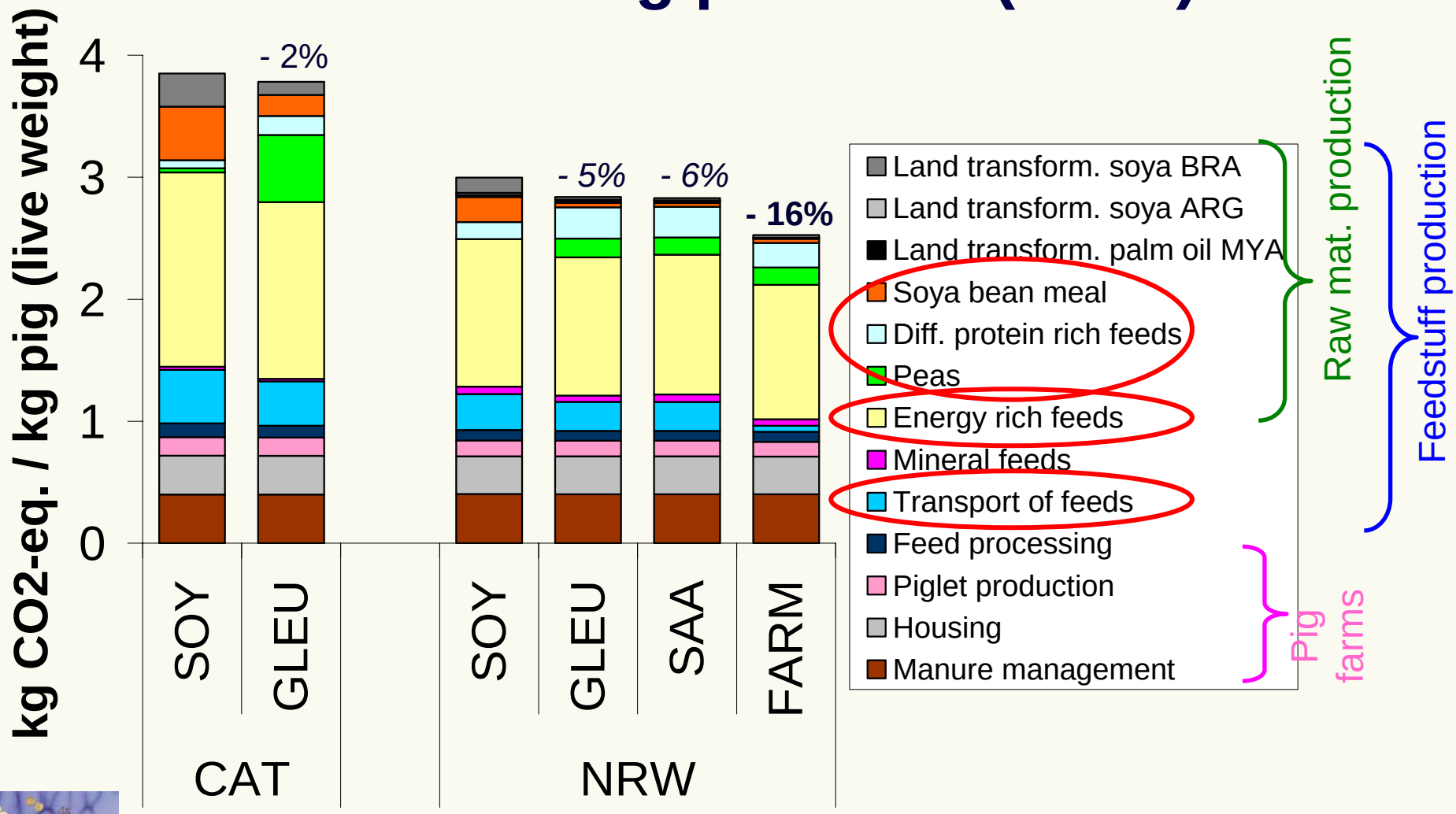
System definition



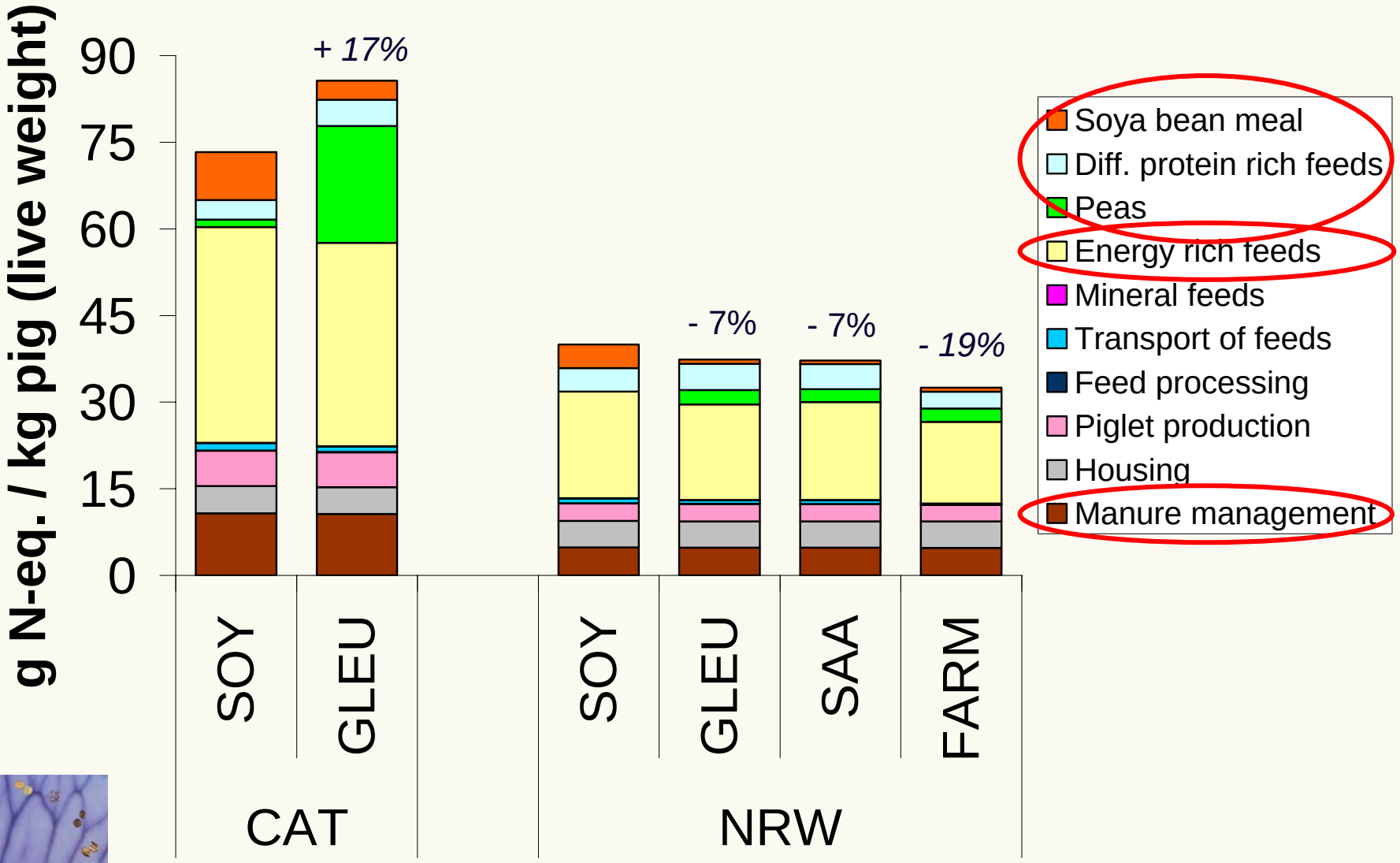
Energy demand



Global warming potential (GWP)



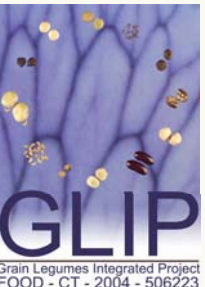
Eutrophication



Are there benefits from replacing soya beans from overseas by EU grain legumes?

- **No overall benefits** for GLEU compared to SOY
- A clear benefit regarding **transports (less "feed miles")**; an even higher benefit is obtained from using **locally produced feedstuffs**.
- **Land transformation** is decisive for global warming potential.
- But overall results are more determined by the **composition of** the whole **feed formula**.

  - *in addition **yield level** is important*



Conclusions

⇒ **Feedstuff production** is the **dominant process** in fattening pigs.

⇒ **Environmental optimisation** depends on several **factors**: choice of feedstuffs, origin of feedstuffs, transport path

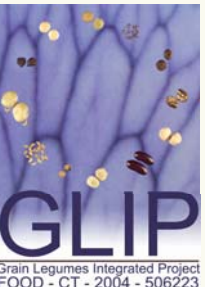
⇒ **Environmental optimisation** should be **considered in formulating the feeds** (could be added to economic feedstuff optimisation models)

⇒ Measures have primarily to be taken to **reduce** the **environmental burden of feedstuff production**

⇒ Bringing **feedstuff production** and **animal husbandry** geographically **closer together** has important effects on GWP and energy demand of transport

⇒ There is optimisation potential for **animal husbandry** and **manure management**

⇒ **Options for the farmer: choice** of **origin of feedstuffs** and **improvement** of **productivity of system**



Thank you for your attention!

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