

# Environmental LCA of Irish dairy products

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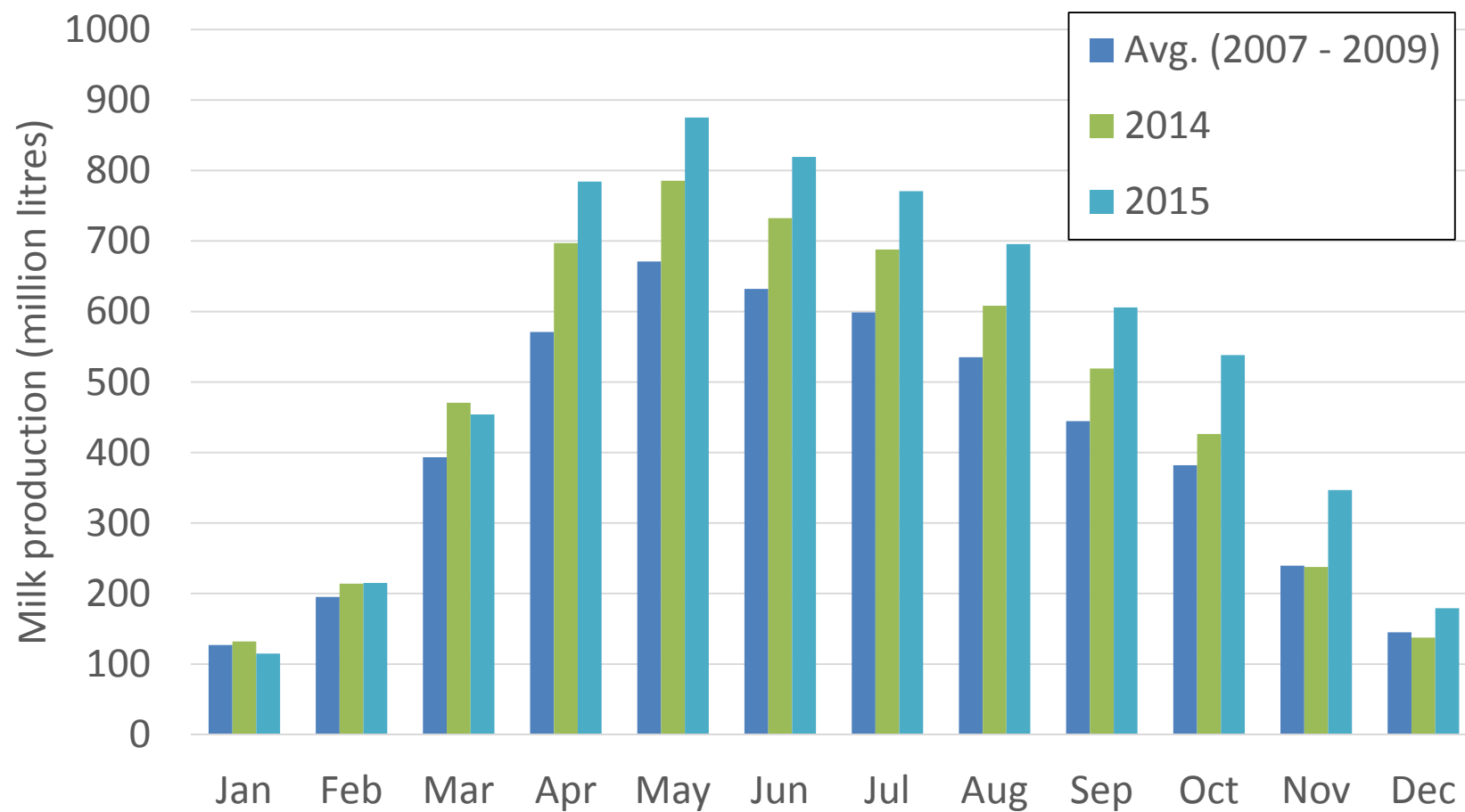
# Presentation contents

- Introduction
- Macro-scale study
- Environmental LCA using plant data
- Discussion points

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# Irish milk production

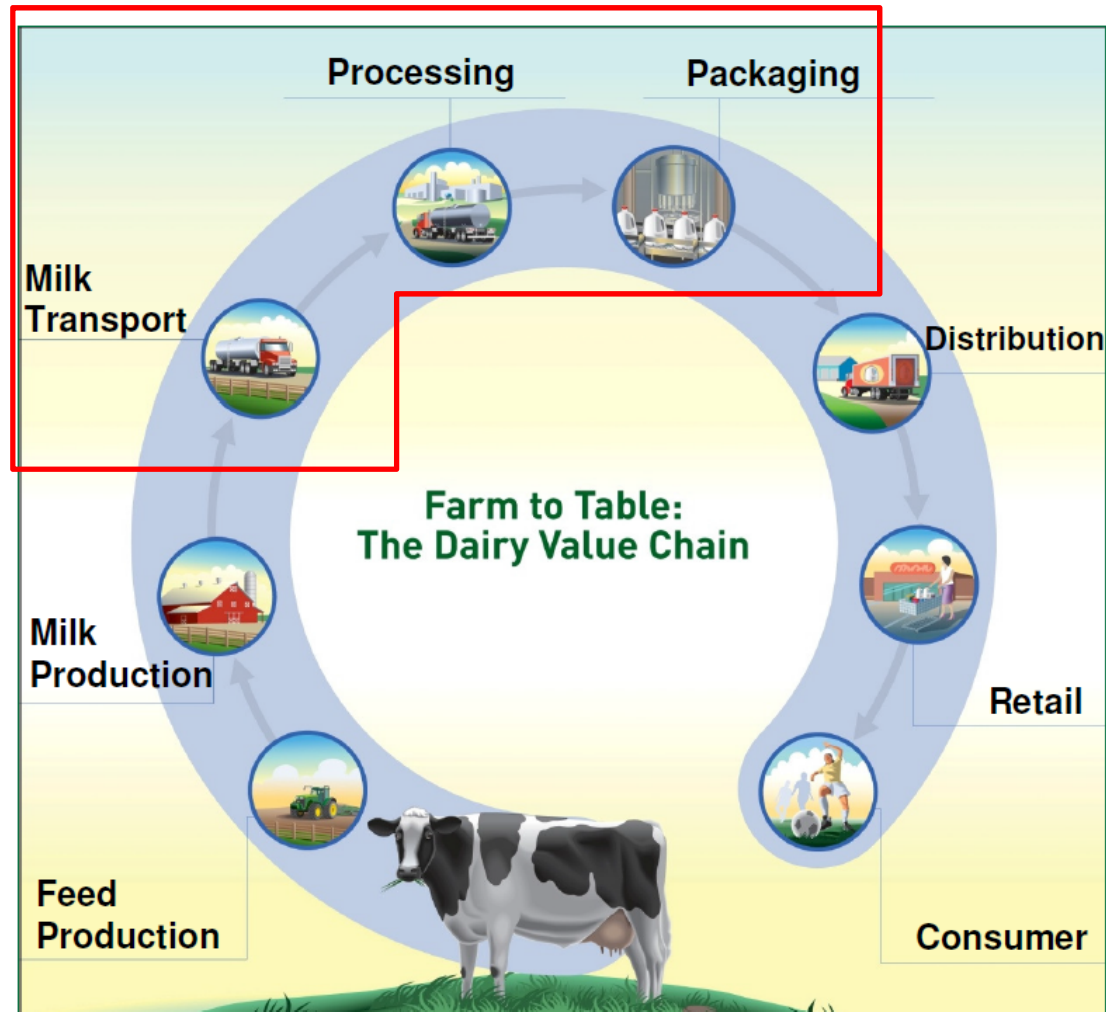


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# Task 6 objectives

- Carry out an environmental life cycle assessment of the Irish dairy processing industry
  - Macro-scale LCA of global warming potential (GWP) of Irish dairy products
  - Detailed environmental LCA for manufacture of main dairy products:
    - Fluid milk
    - Cheese
    - Butter/milk powder
    - Cream
    - Whey powder
    - Infant formula (powder)
- Return individual analysis results to participating plants
- Develop a framework for environmental life cycle assessment of dairy processing facilities in Ireland
  - waste management and water use

# System boundaries



Wang, Y. (2011) *U.S. Dairy Life Cycle Assessment: From Grass to Glass*

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# Lifecycle inventory analysis

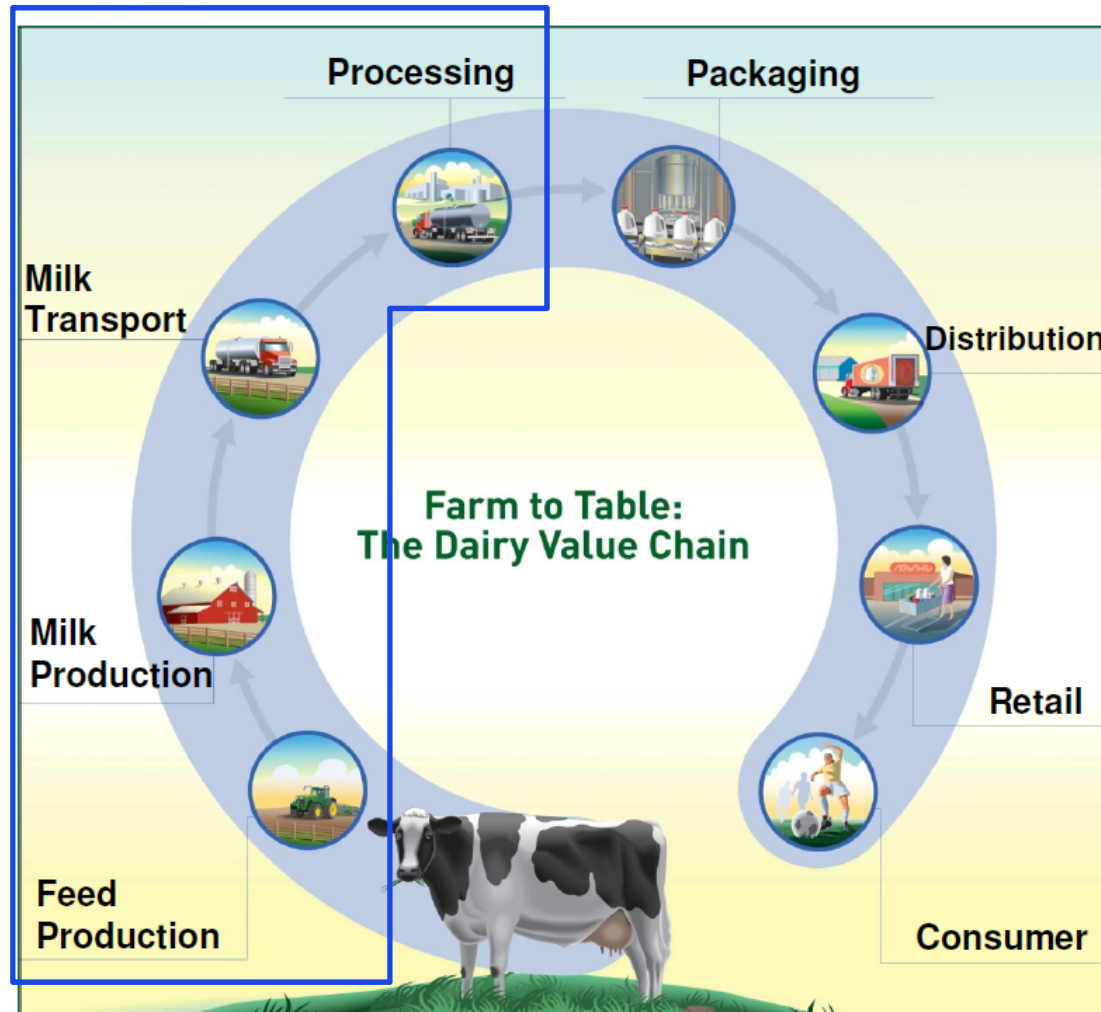
- Most critical part of the LCA and is dependant on the quality of the data
- Surveying and data collecting at dairy processing plants will be at the epicentre of the study
- Data generated from the studies in the project will provide the information for the comparative LCA study
- Data from industry will be collected at two levels:
  - For plants with adequate monitoring in place, at each processing phase will be collected for a given product
  - Otherwise, an overview of the inputs and outputs, along with engineering estimates of allocation will need to be provided

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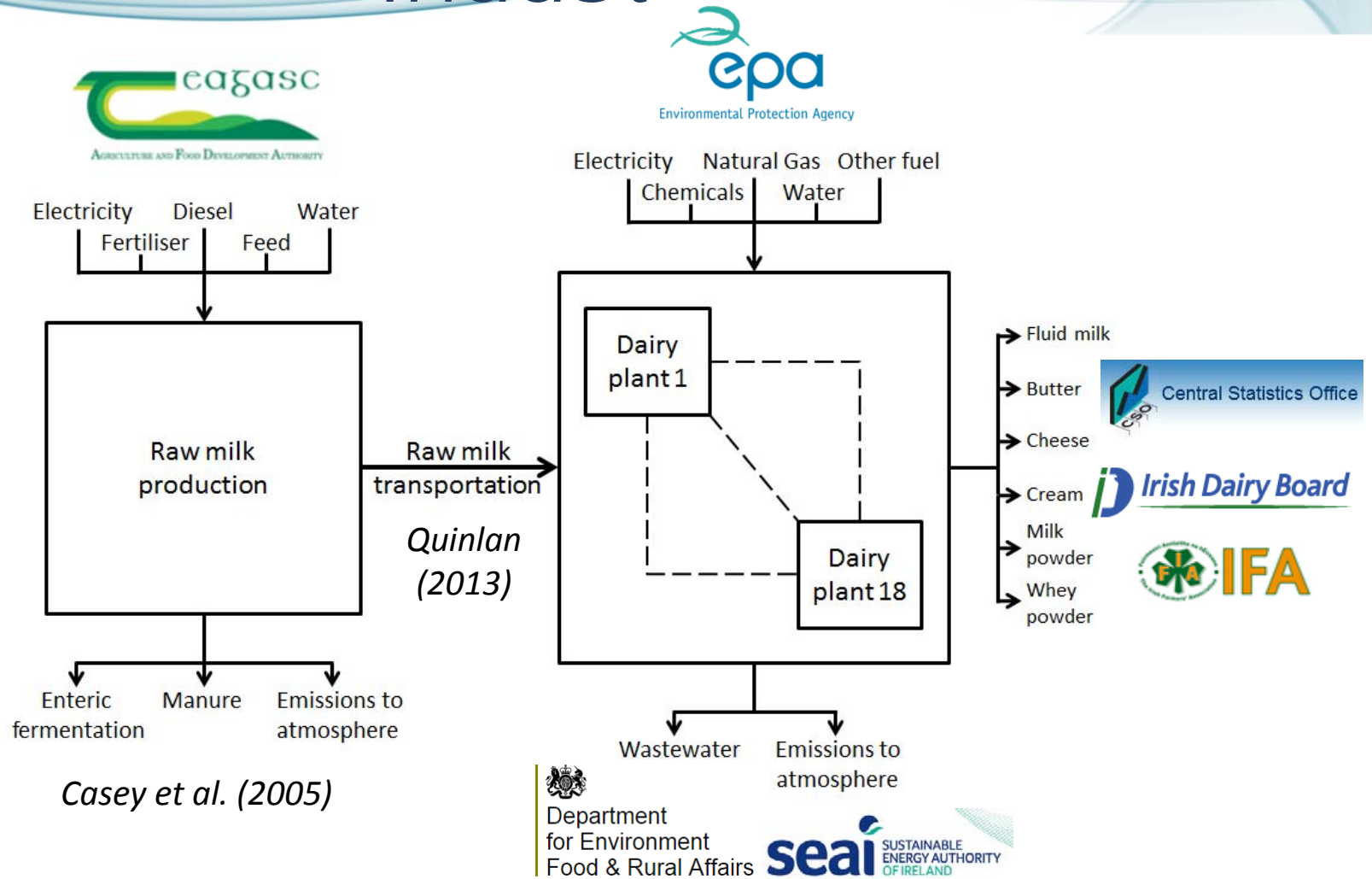
# System boundaries



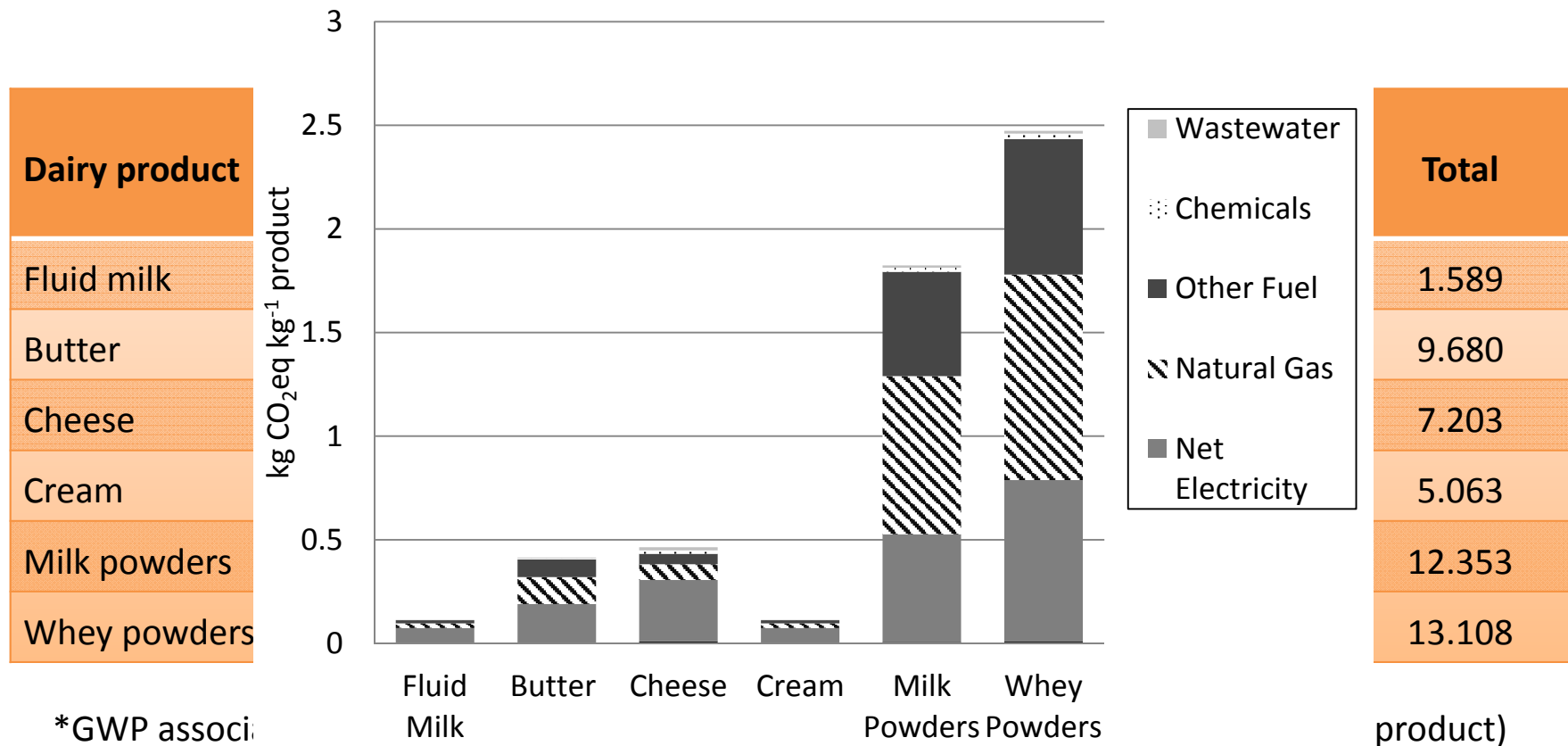
Wang, Y. (2011) *U.S. Dairy Life Cycle Assessment: From Grass to Glass*

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# Macro-scale study of Irish dairy industry

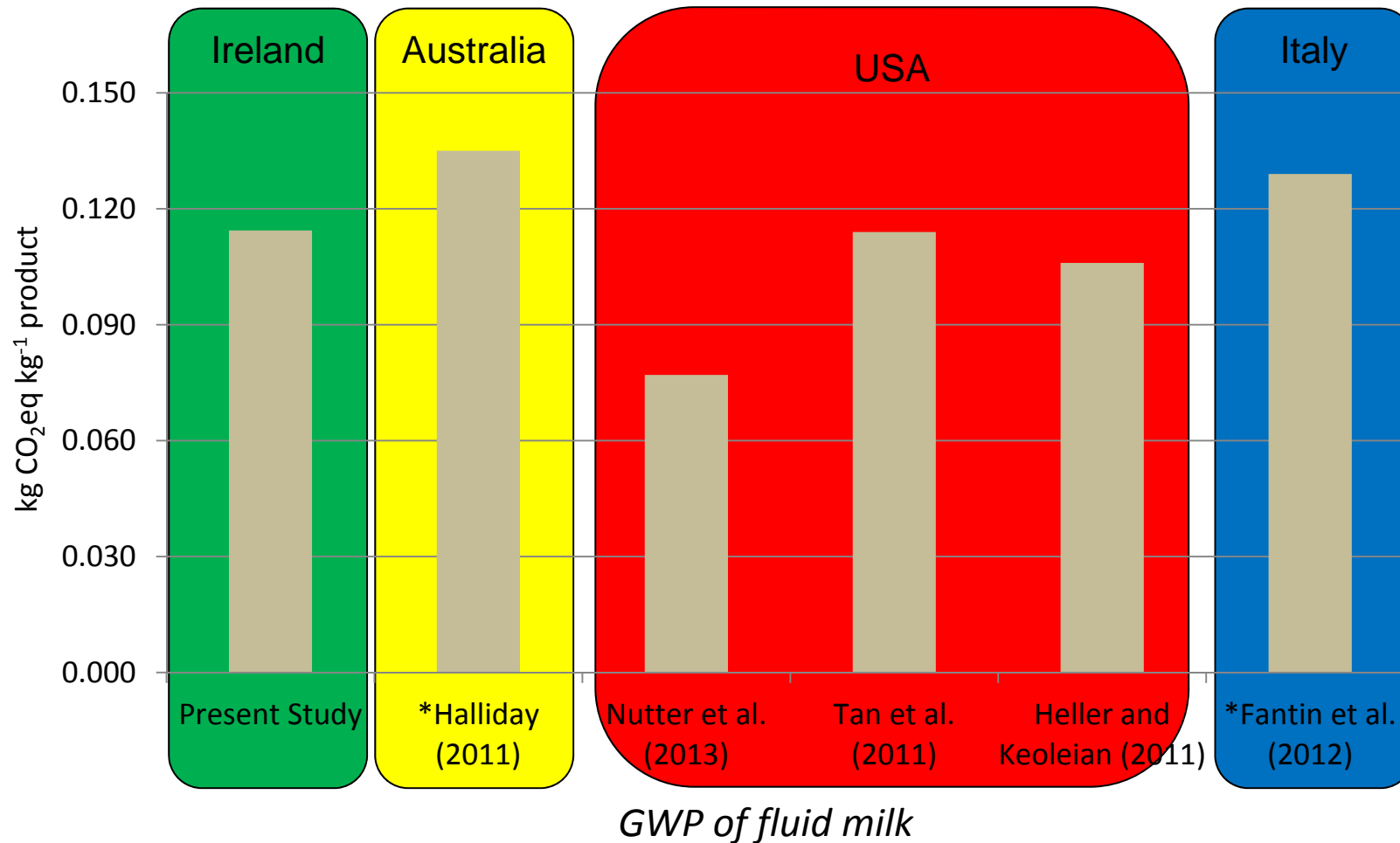


# Macro-scale study of Irish dairy industry



\*GWP associ

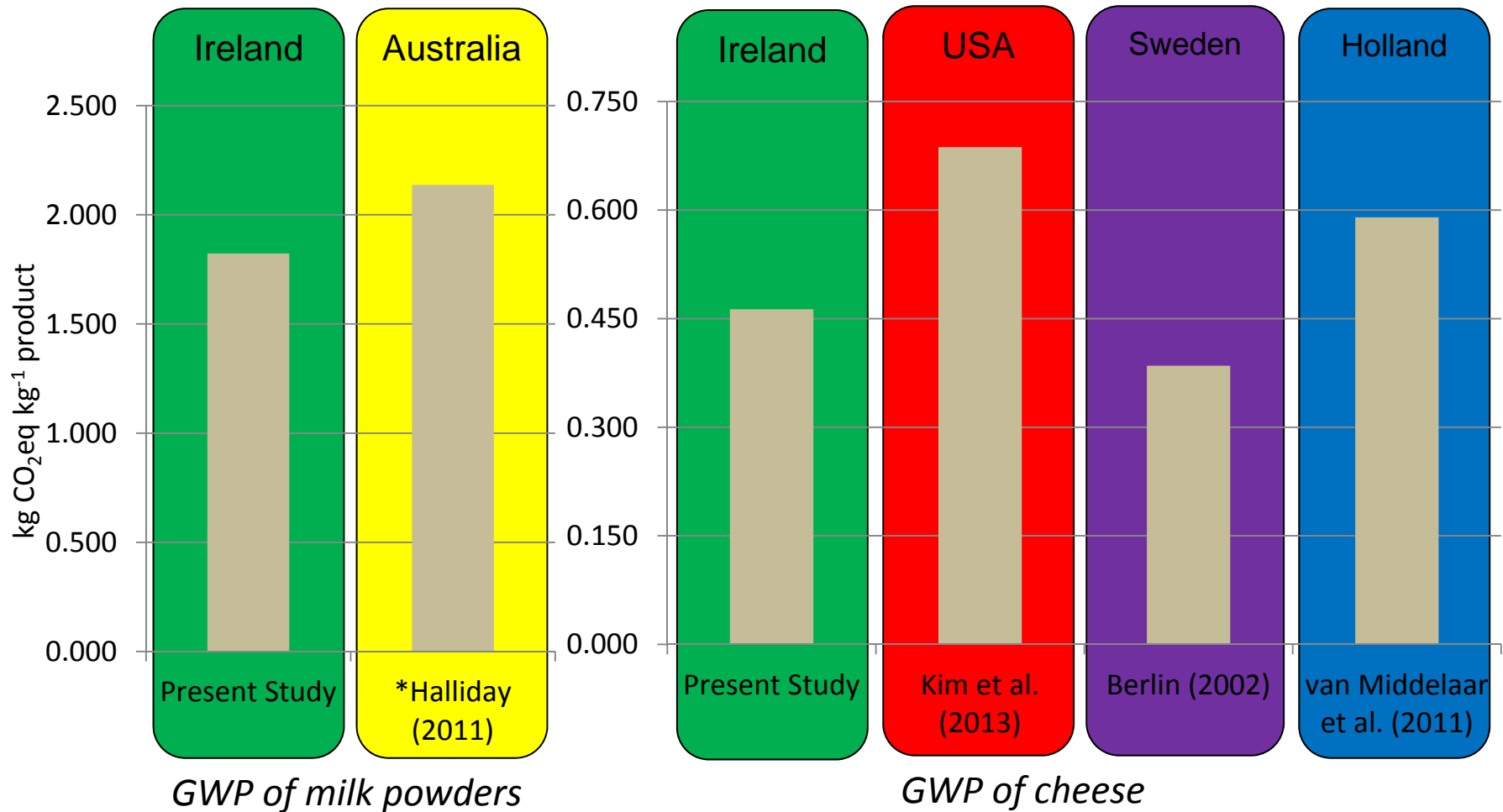
# Macro-scale study of dairy processing industry



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\*Edited figure for comparison

# Macro-scale study of dairy processing industry



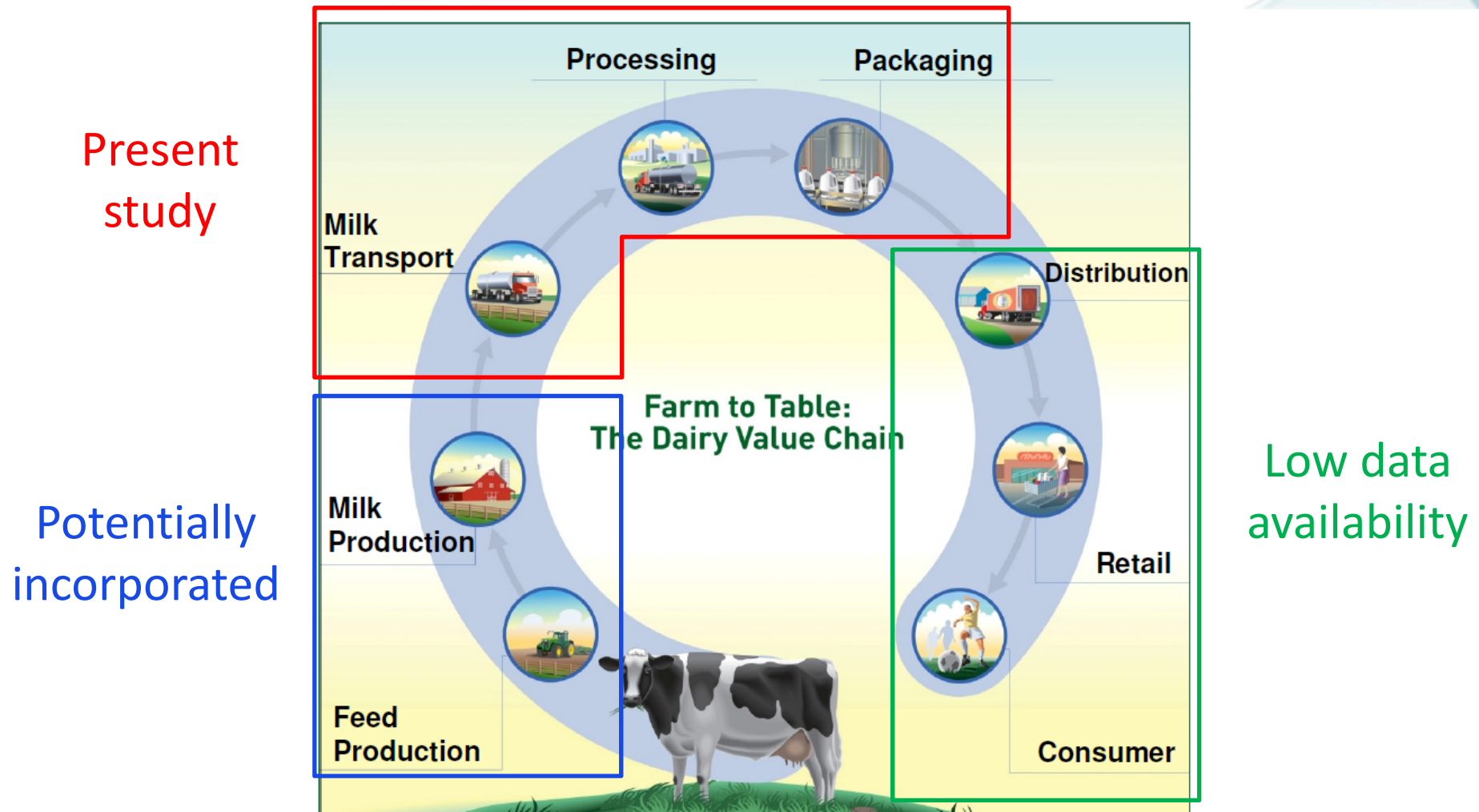
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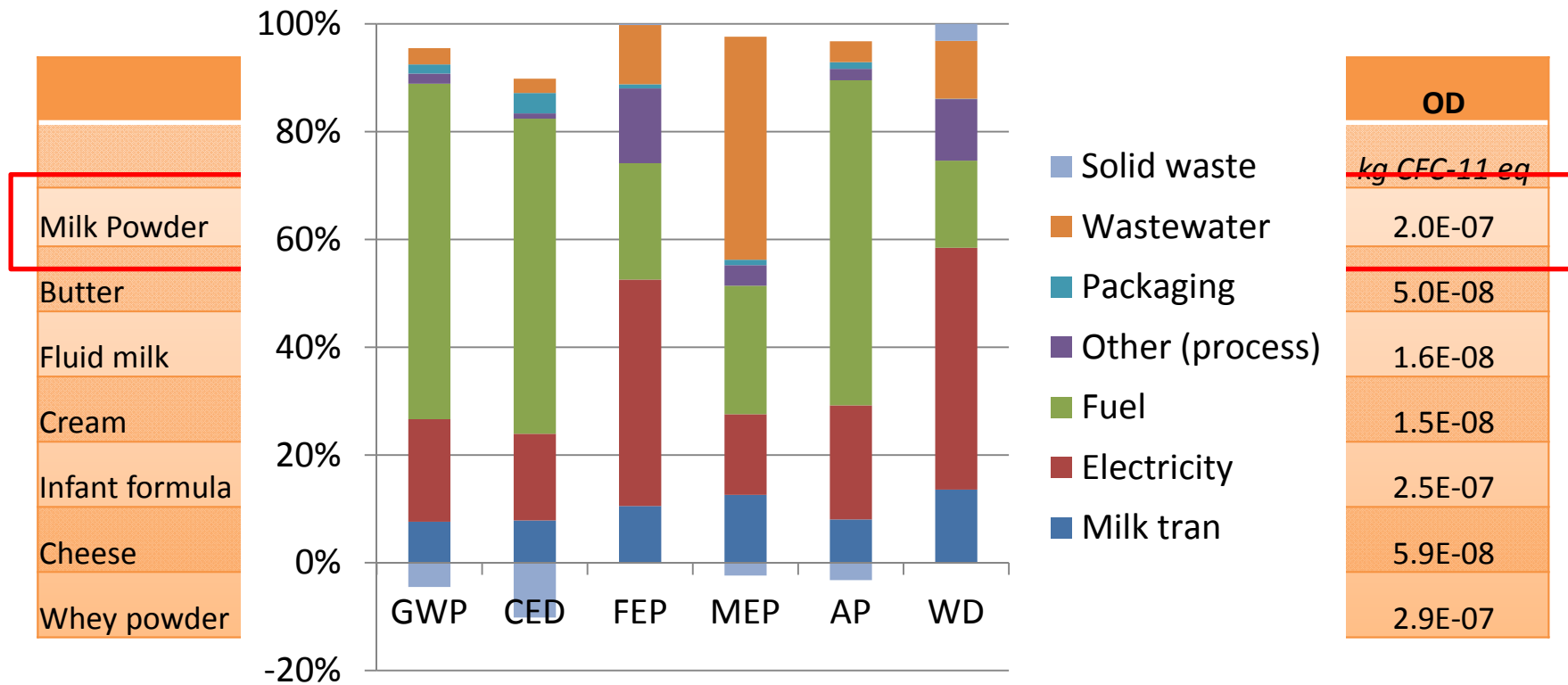
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# Environmental LCA of Irish dairy processing plants

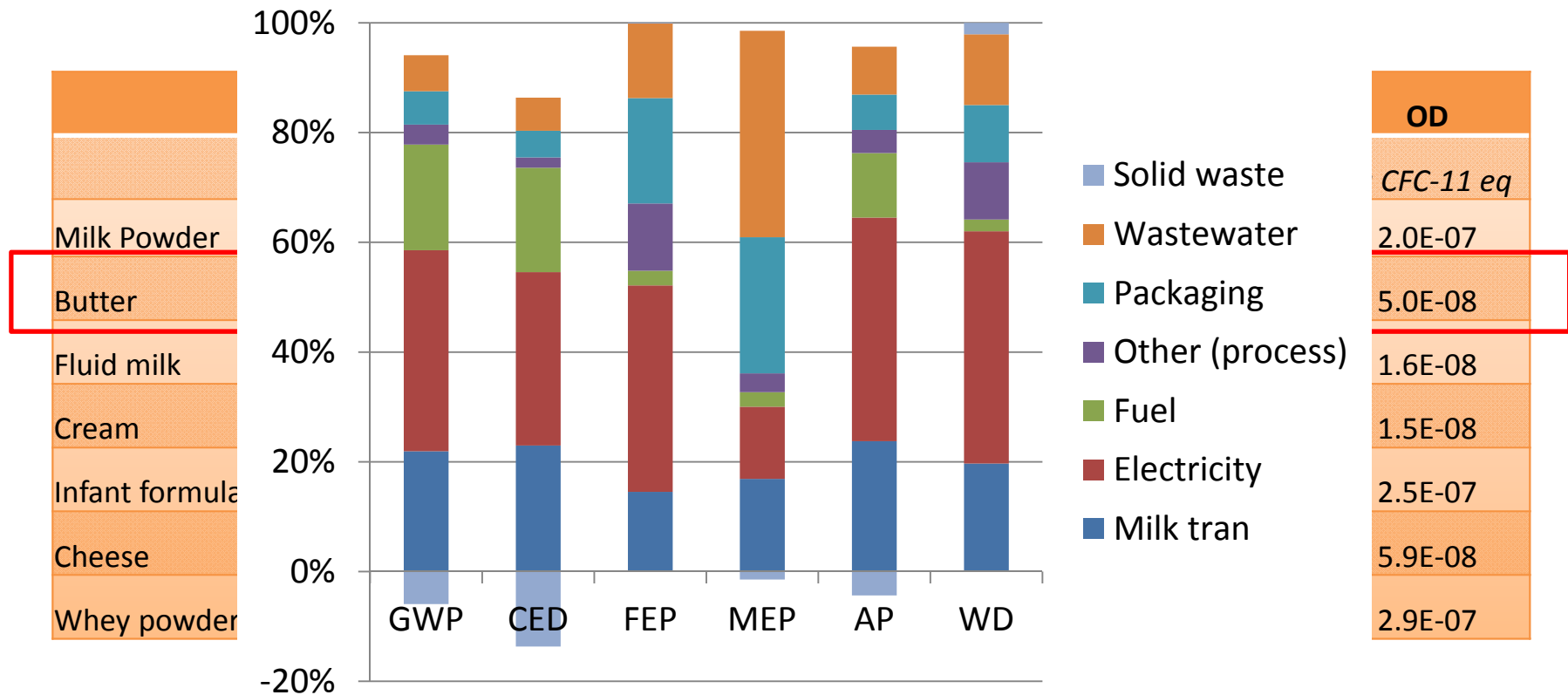
- Main input data required from plants:
  - Volume of milk processed
  - Production statistics (tonnes)
  - Raw milk transportation
  - Chemical usage
  - Energy usage (electrical & thermal)
  - Water consumption
  - Packaging materials used
  - Wastewater treatment
  - Solid waste disposal



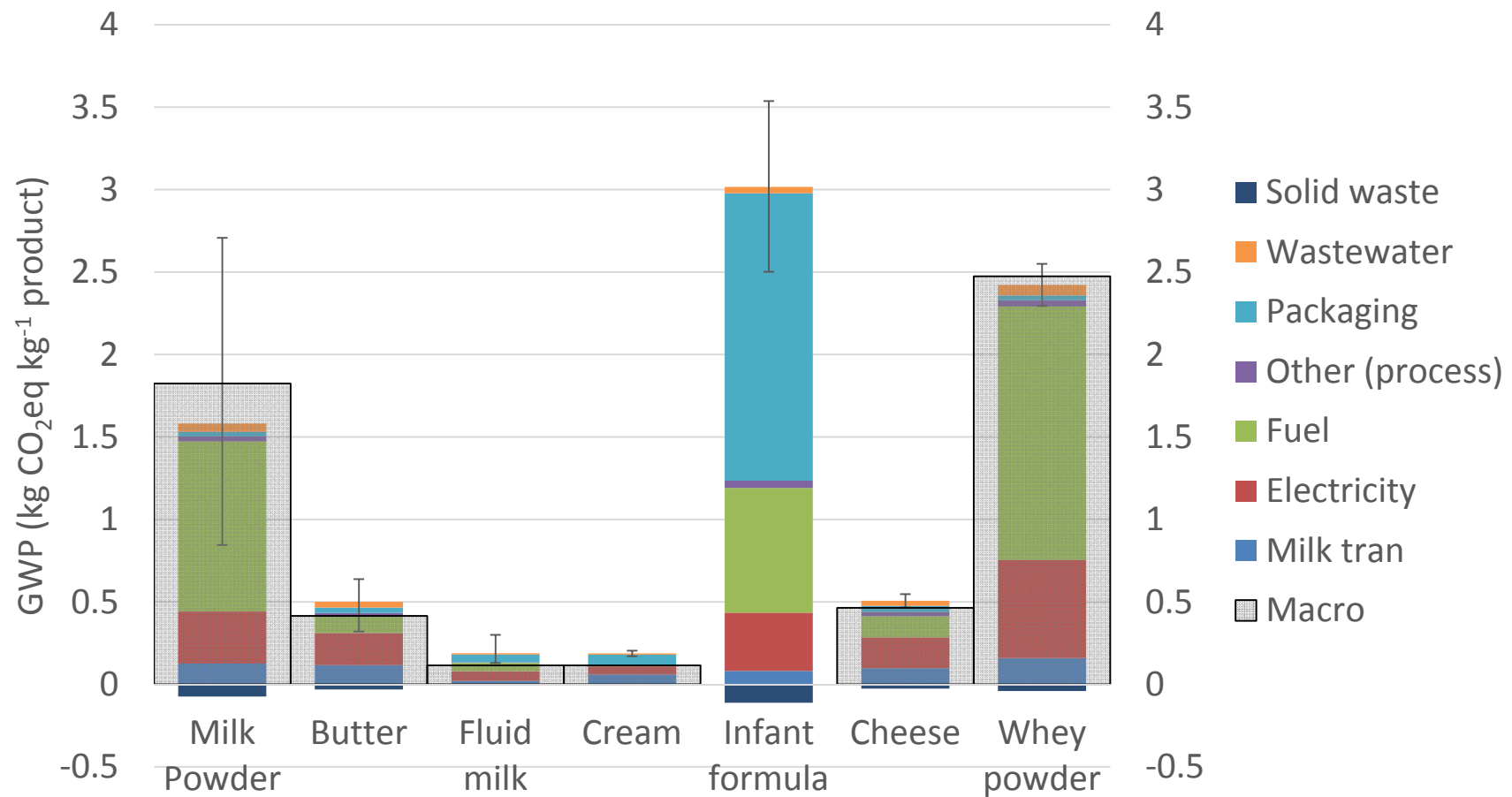
# Environmental LCA of Irish dairy processing plants



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# Discussion points

- This study will serve as a benchmark for processors
  - Identify opportunities to reduce impacts
- Inform policy makers of the significant contributors to environmental impacts
- Next steps:
  - Increase the number of plants in study
  - To explore the affect of seasonal variation of milk production on these impacts
  - Feedback to participating dairy plants

# Questions???

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