

Modelling the influence of increasing milk yield upon greenhouse gas emission and profitability considering different co-product allocation

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Heraklion – Crete, August 25th

Increasing milk yield = reducing GHG emissions?

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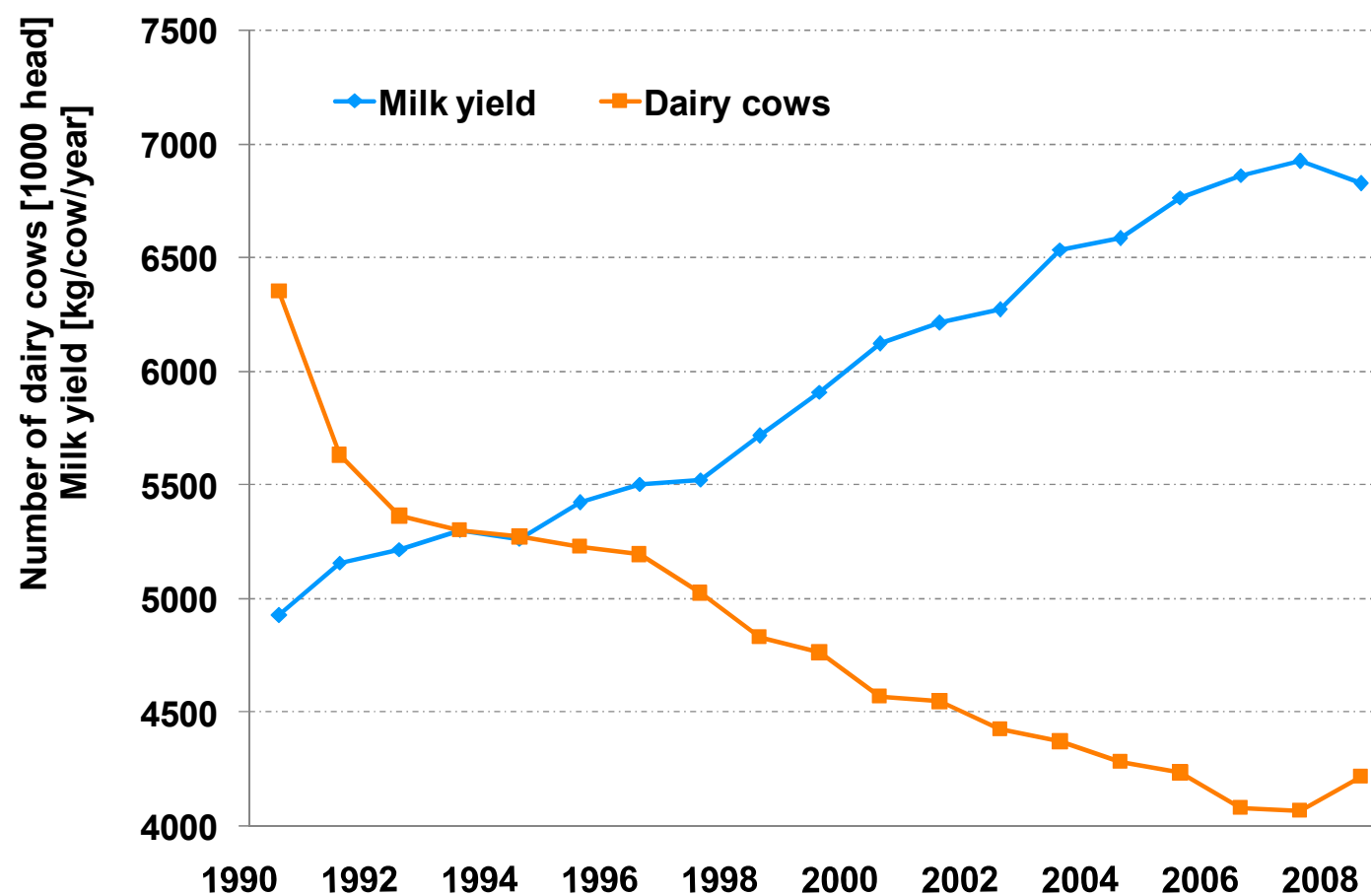
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Outline

- Milk yield, Beef production
 - Model description
 - Results
-

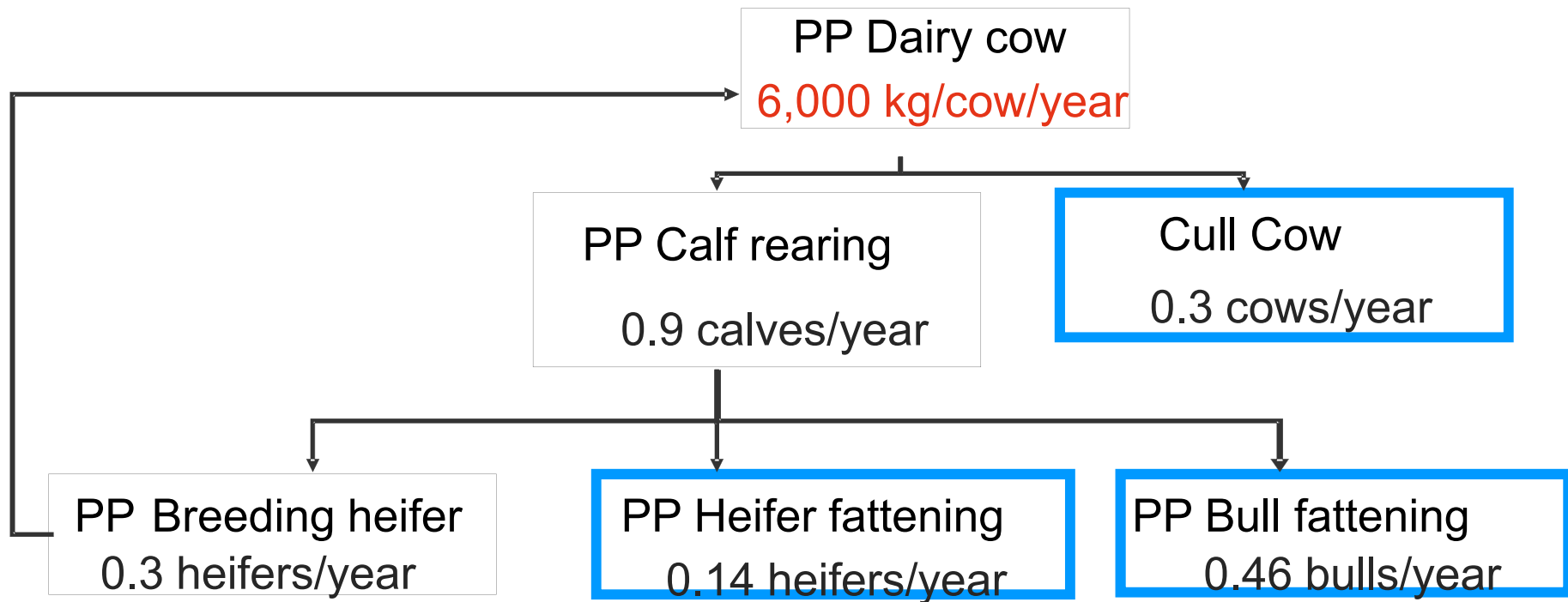
Trend of milk yield and number of dairy cows in Germany



Outline

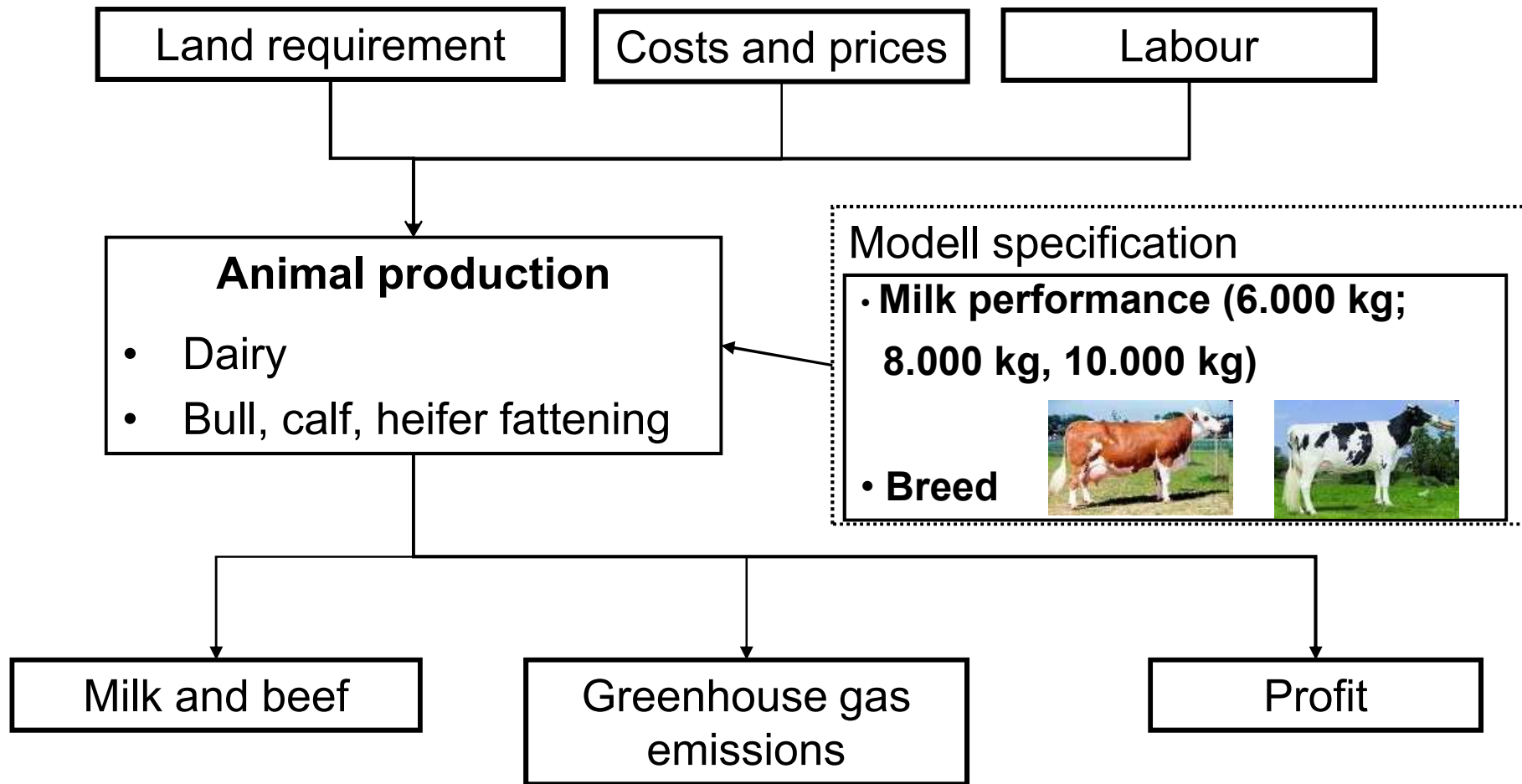
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Definition of a production unit – PU 6,000 kg Co-products of a dairy cow



PP: production process

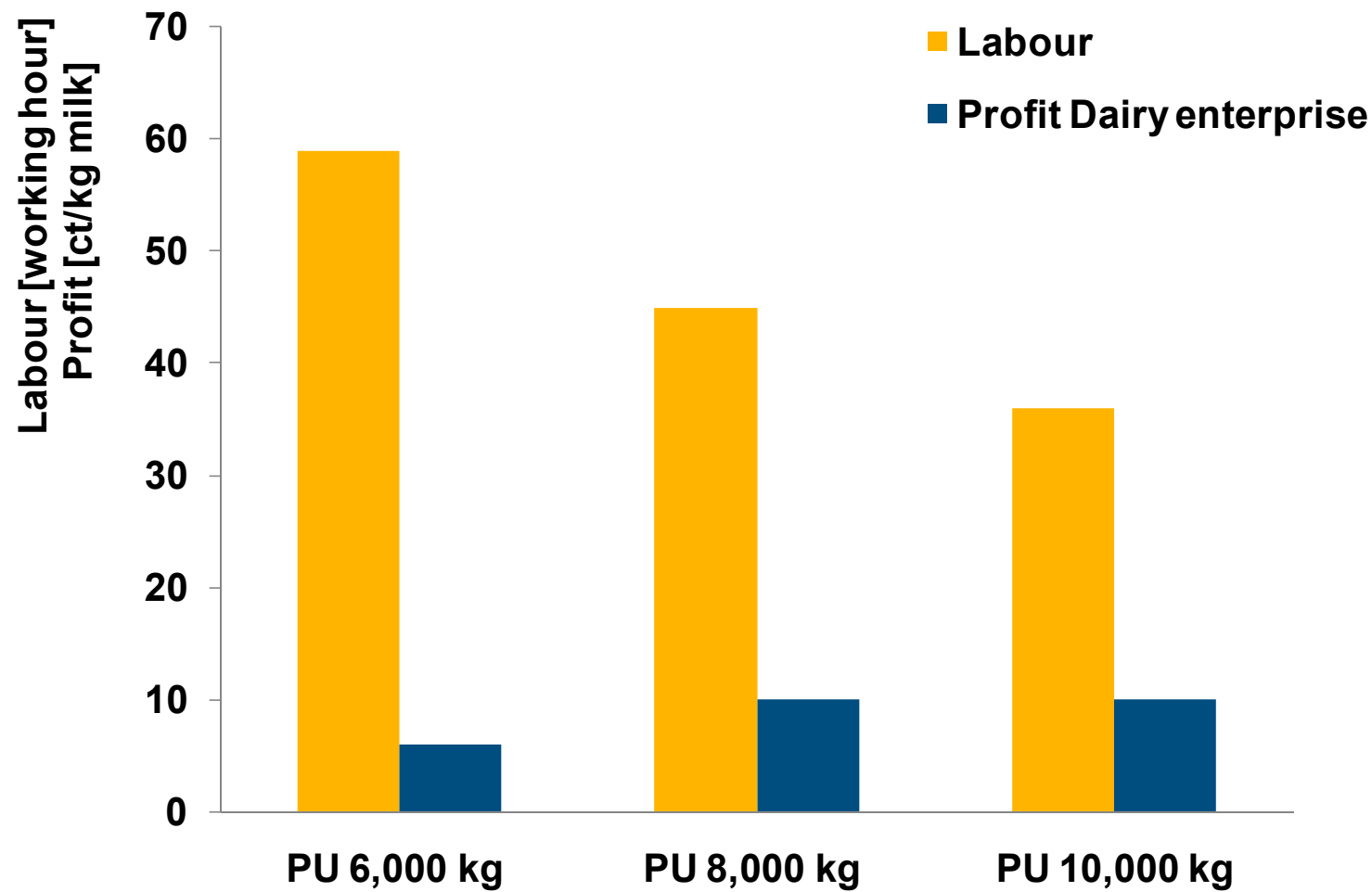
Modell specification



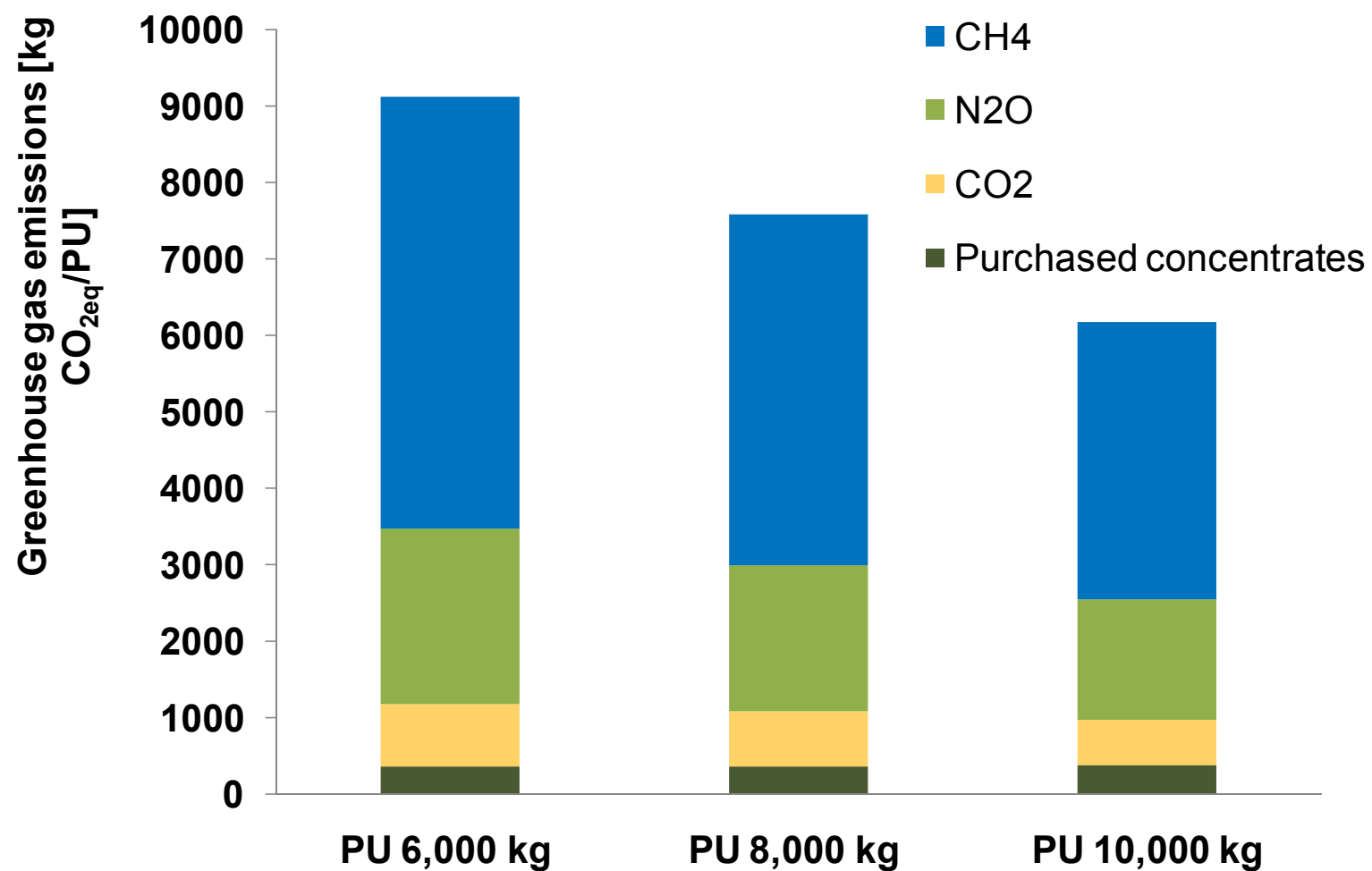
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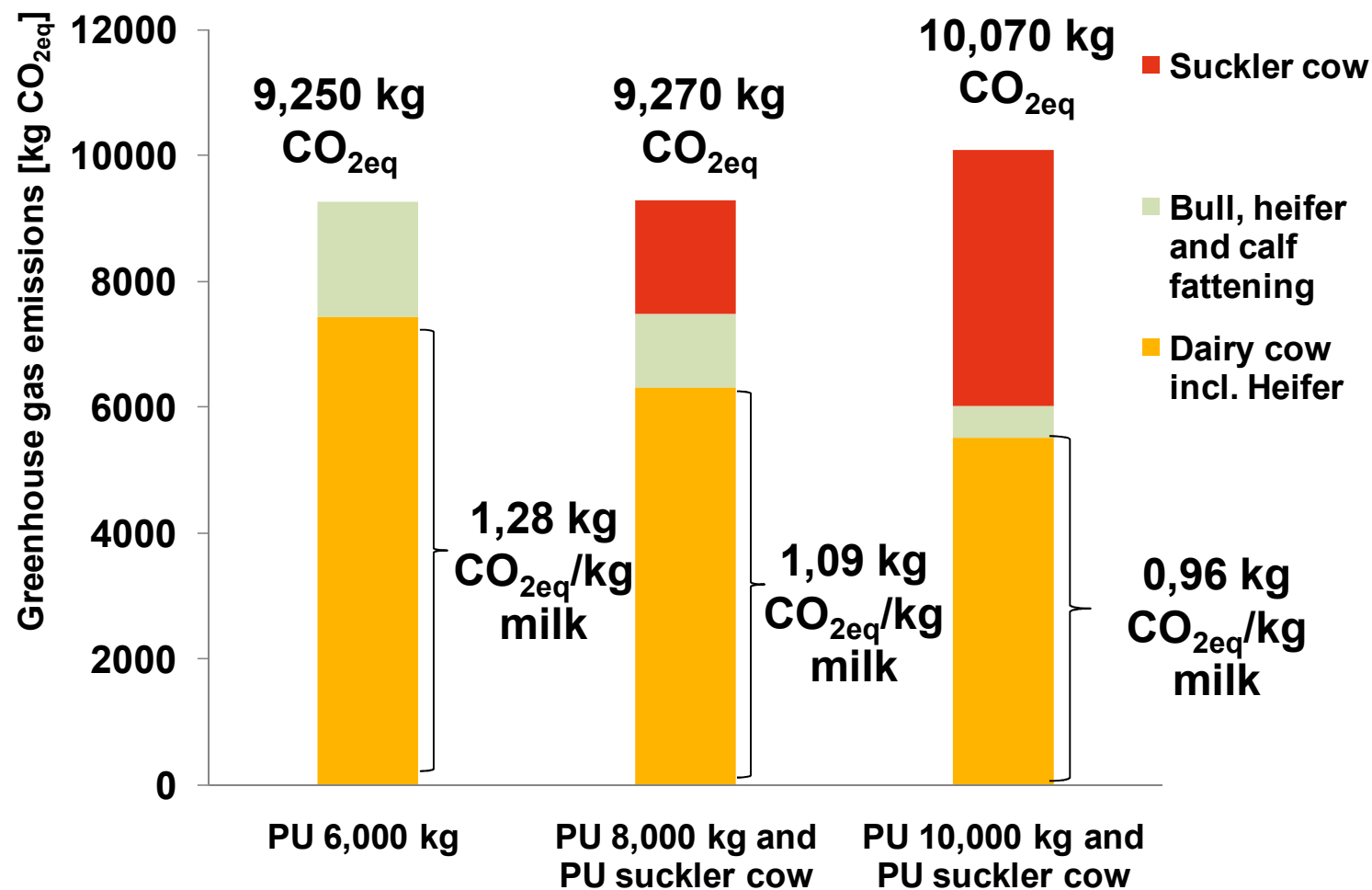
Different milk yield – constant milk production, different beef production



Different milk yield – constant milk production, different beef production



Greenhouse gas emissions considering different production units



Different allocation methods

Whole system			No allocation	Economic allocation	Beef
PU Dairy cow	kg CO _{2eq}	Dairy cow	kg CO _{2eq} /kg milk	kg CO _{2eq} /kg milk	kg CO _{2eq} /kg beef
6,000 kg	9,250	6,000 kg	1.28	0.98	10.8
8,000 kg	9,270	8,000 kg	1.09	0.86	13.0
10,000 kg	10,070	10,000 kg	0.96	0.86	15,4

Conclusion

- Increasing milk yield in dairy farming
 - reduces greenhouse gas emissions in case of reducing beef consumption
 - reduces call for grassland, increases call for concentrates
 - improves farm profit generally
- Modelling greenhouse gas emissions in dairy farming needs to consider
 - calculation method
 - production system
 - sytem boundaries
 - uncertainty

Thank You!