Identification of strategies increasing the trade-off between N balance and income in dairy farms

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Introduction

- Dairy sector challenges
  - Price volatility
  - Environment legislations
  - Social requirement

- An Interreg project : Dairyman (2009-2013)
  - To enhance the sustainability of dairy sector in NWE
  - Increase the delivery of key environmental services

- Methods
  - Follow up of a dairy pilot farms network
  - Transfer of knowledge

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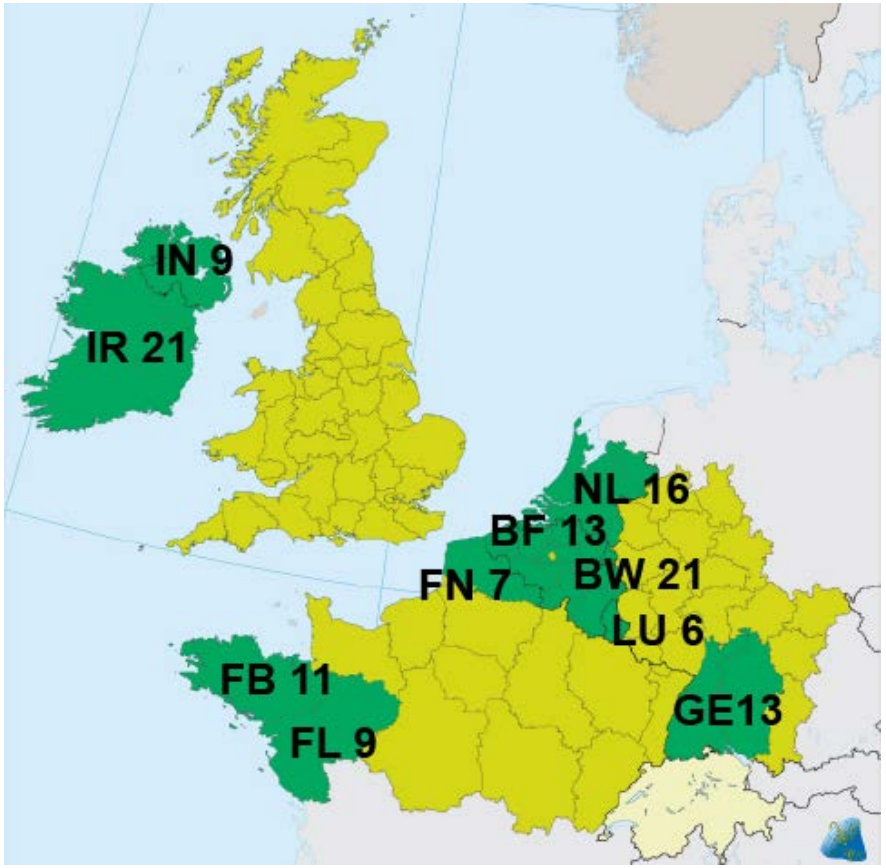
The Dairyman pilot farms networks

- 126 farms in 10 regions
  - Flandre s: BF
  - Wallonia : BW
  - Brittany : FB
  - Pays de la Loire : FL
  - Nord-Pas de Calais : FN
  - Ireland : IR
  - Northern Ireland : IN
  - Germany: GE
  - Luxemburg : LU
  - The Netherlands : NL



- Based not on their regional representativeness but on their whishes to improve the performance of their system

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Objective

- Possibilities to conciliate Economic and Environmental performances ➔ based on farms results from 2009 and 2010

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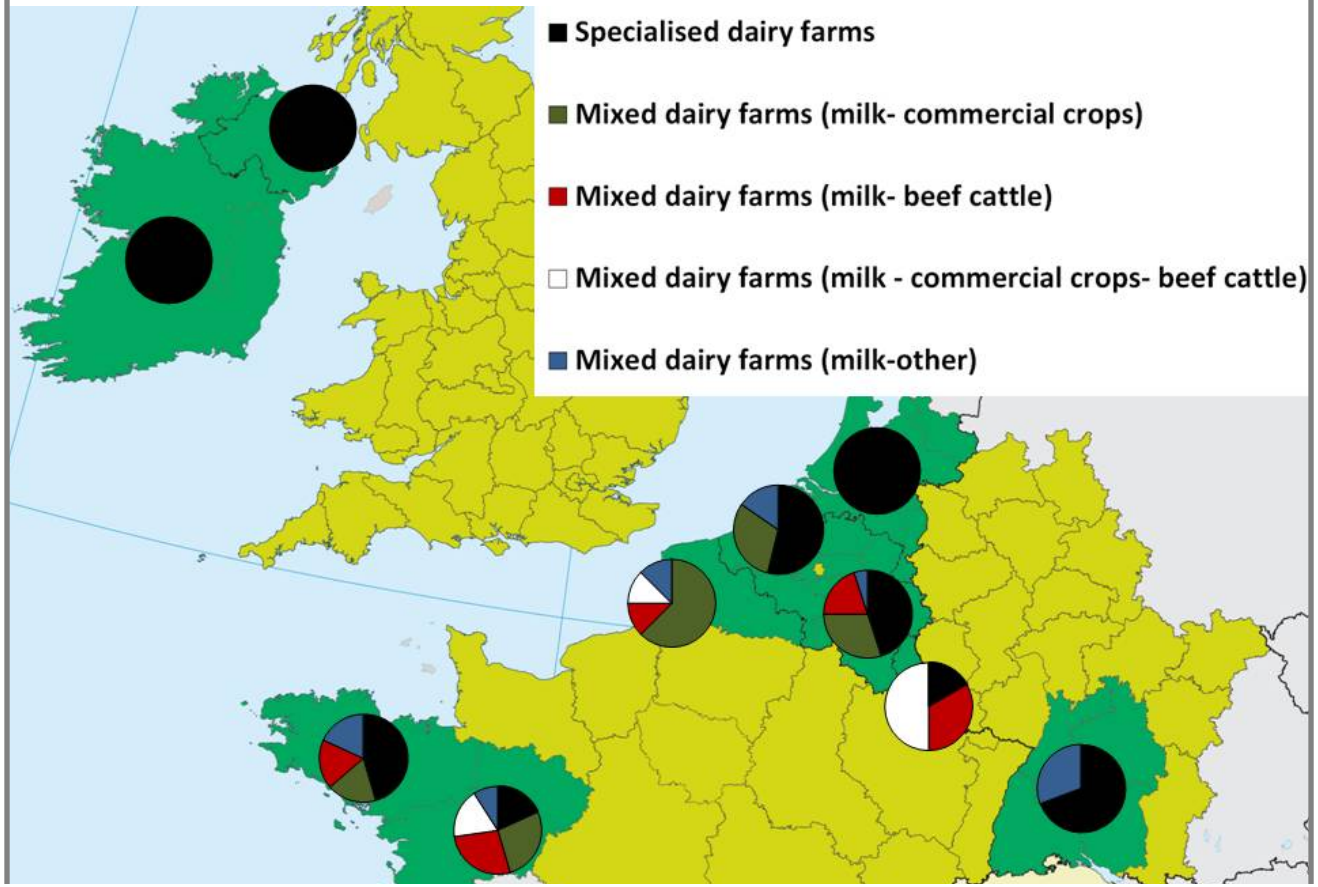
Pilot farm characteristics

Proportion of mixed and specialised pilot farms in the different regions (2010)



In this study => focus on 76 specialized dairy farms as N balance was quantified at farm and not at the dairy production scale

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Farms performances

- Economical performance (€/labour unit):

$$\textbf{Farm Income per labour unit} = \frac{Receipts - Annual\ Expenses - Depreciation - Interest}{Family\ Labour\ Units}$$

- Environmental performances:

$$Mineral\ balance = \sum Input - \sum Output - \sum Stock\ variation$$

  - Surplus (losses) in kg/ha and in kg/1000 kg of milk

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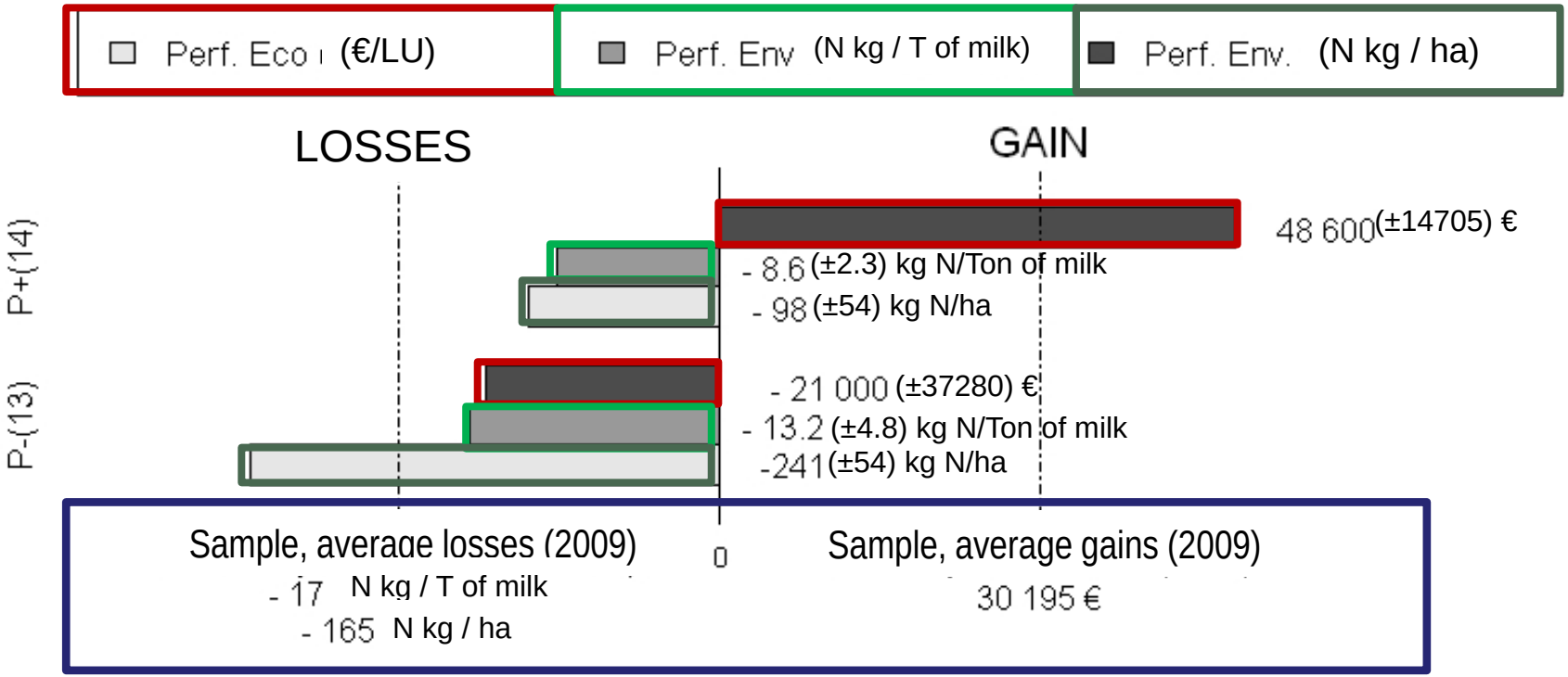
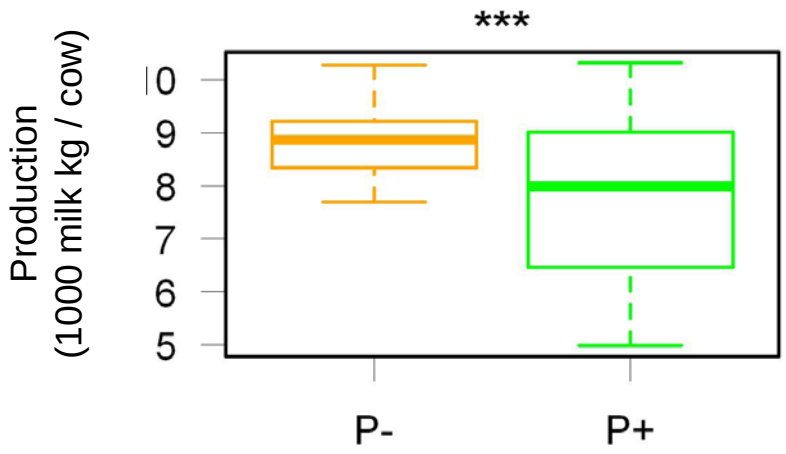
Results : Efficient systems in 2009

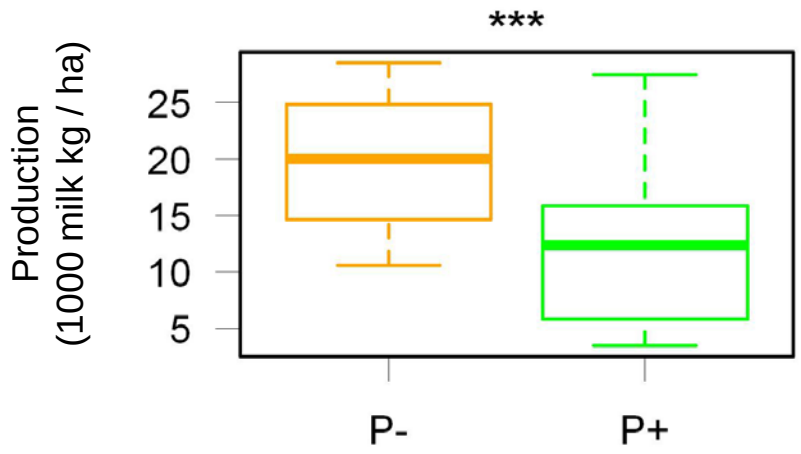
- Identification of 2 groups P+ and P-

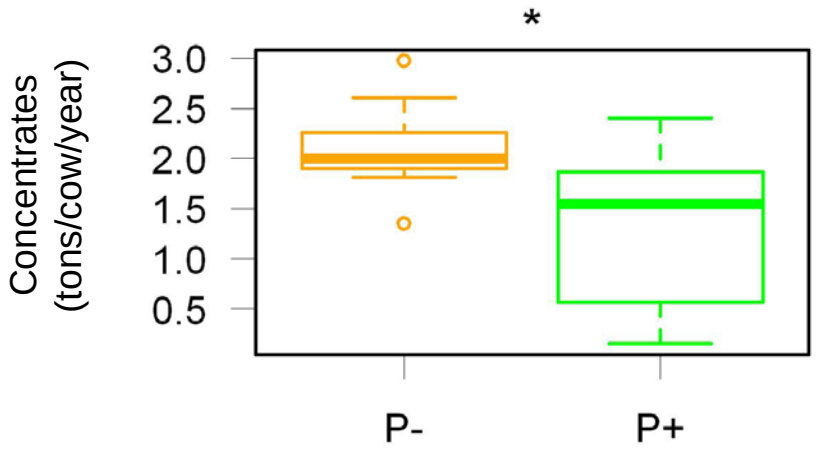


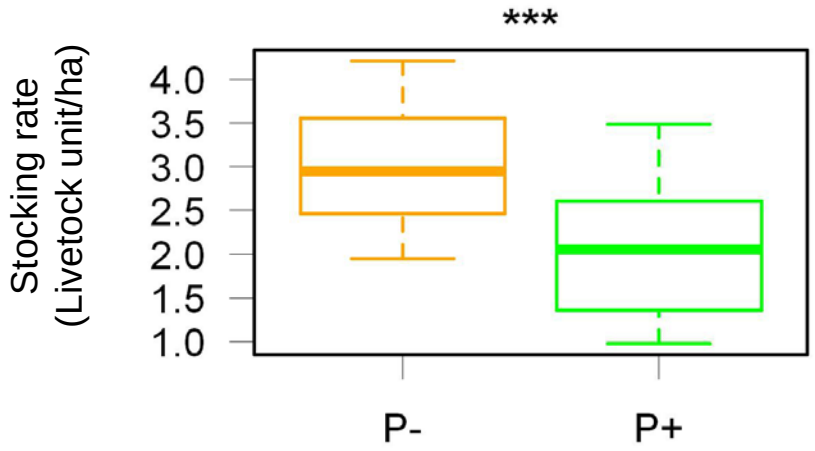
- P+
  - BF, BW, FB, GE, IR, LU, NL

Efficient systems in 2009









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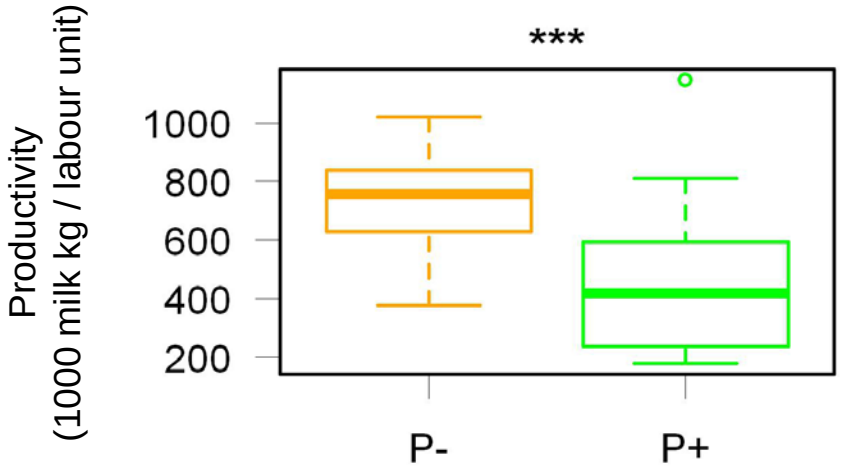
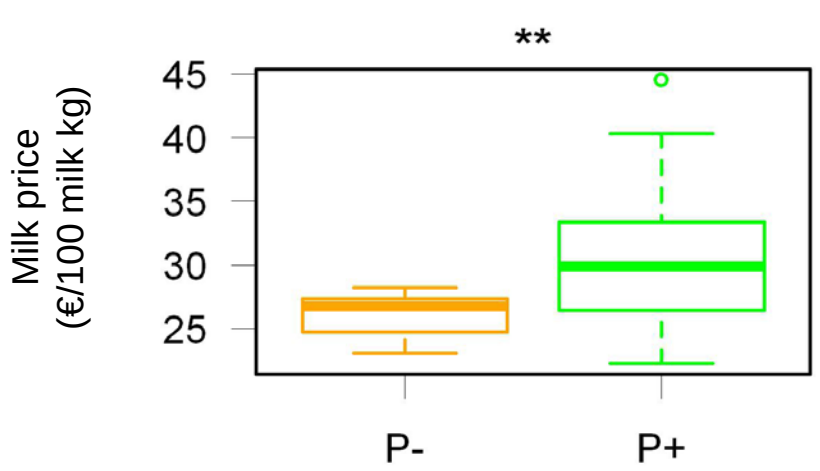
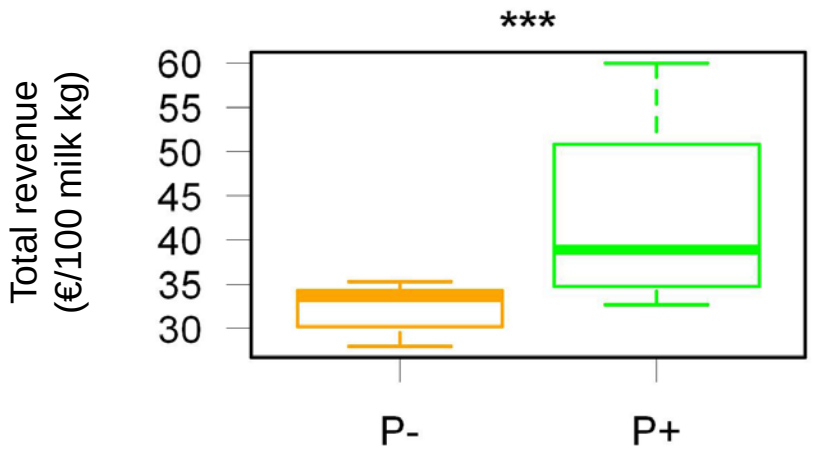
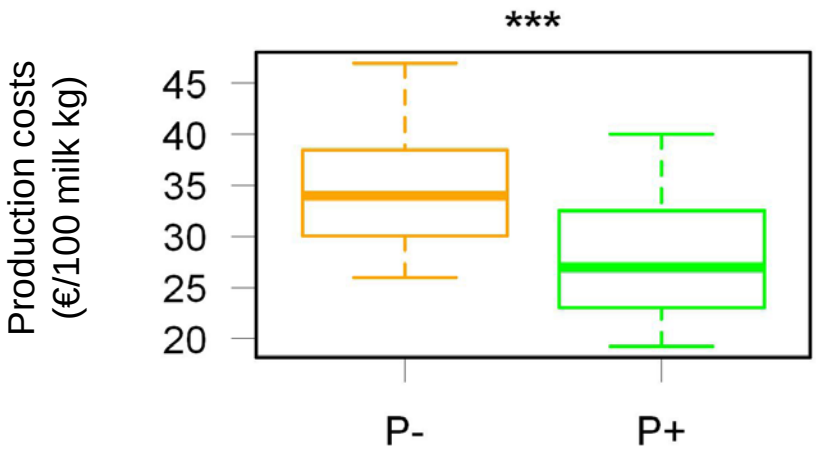
Efficient systems in 2009









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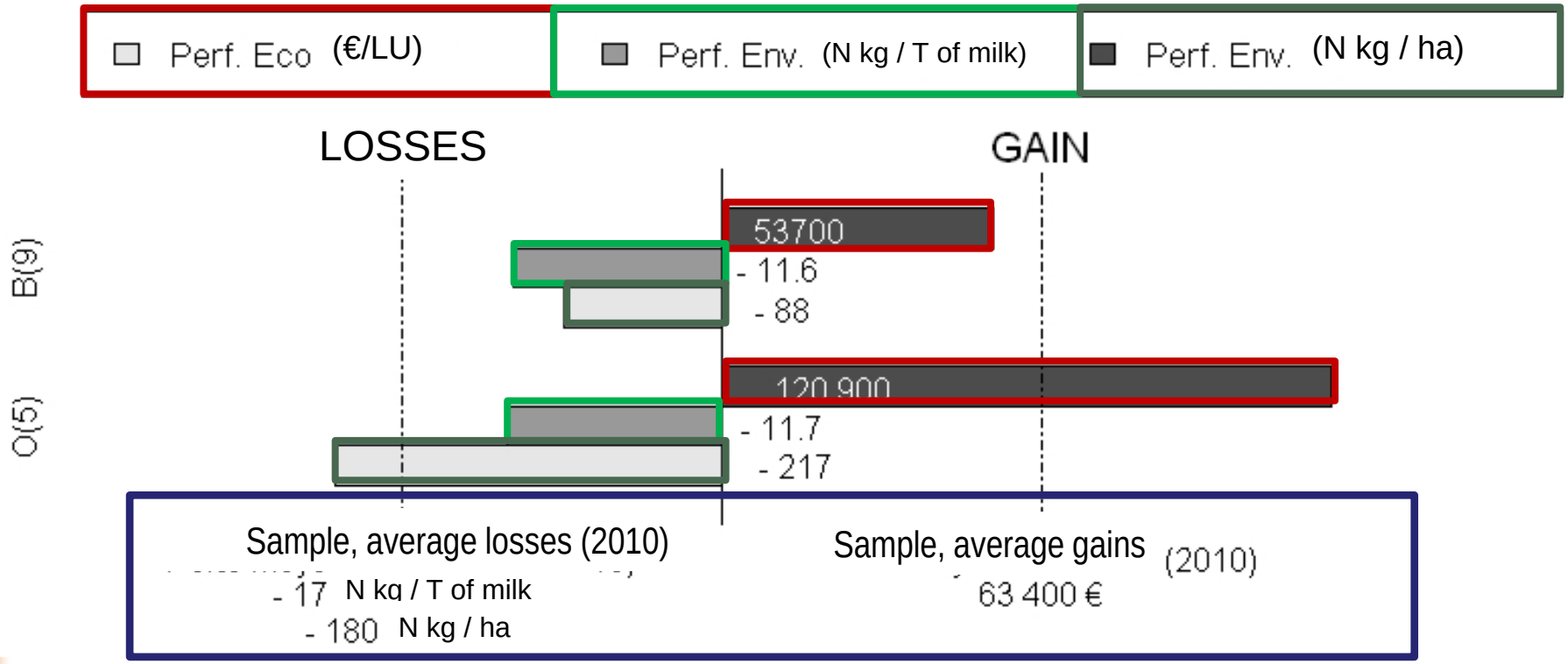
Efficient systems in 2010

Evolution of P+ farms en 2010



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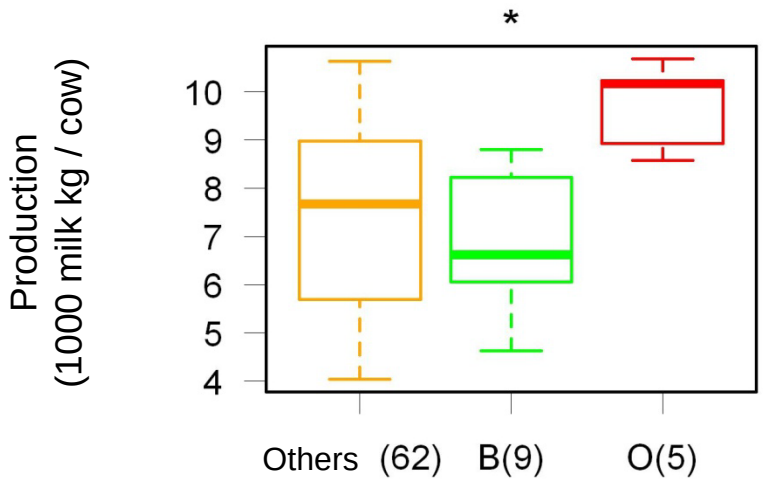
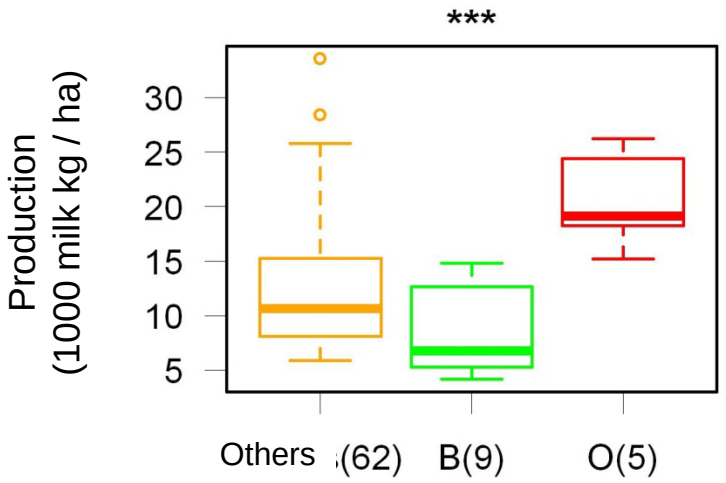
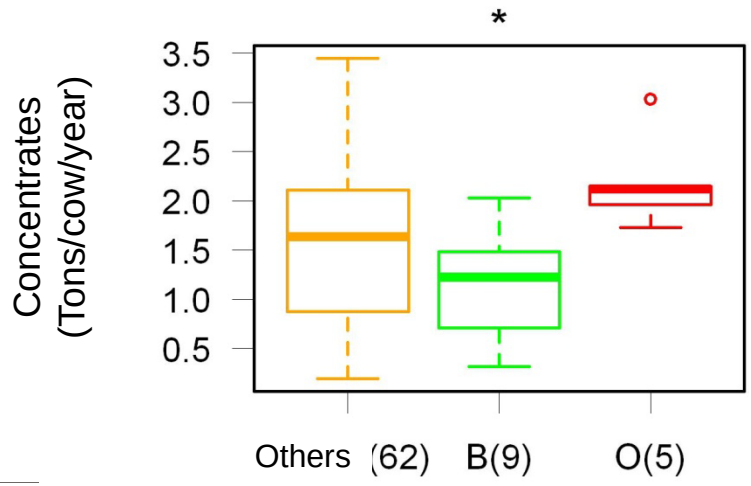
Efficient systems in 2010







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Conclusions / hypothesis to be tested

- High diversity in farming systems in Europe
- Environmental and economic performances are compatibles but different strategies lead to different responses to market signal :
  - Self sufficient systems = more robust and resistant with few flexibility if they become fully dependant of global market (importance of milk valorisation scheme with added value). Now, such systems need flexible animals able to adapt to ressource quality and quantity variability.
  - Input based systems = need flexibility and even plasticity in their management, in order to respond to economical context evolution. They also need flexible animal able to adapt to these evolutions of the management rules. Inputs management is a key-issues, but how will dairy cows answer to such solicitation on the long term?

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Perspectives

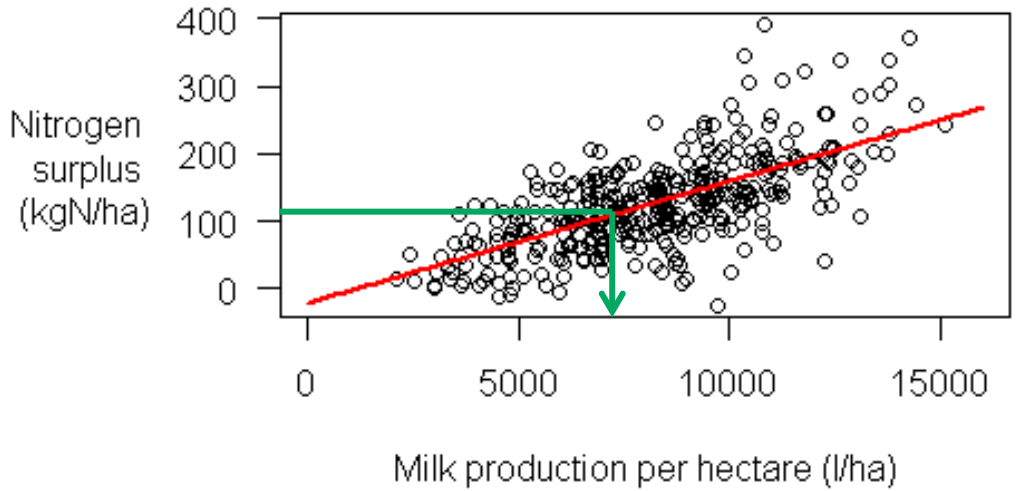
- Analyse mixed systems performances (allocation of the environmental performances is not easy)

- Economic resilience at longer term (inclusion of 2011 data) : how does systems react to input cost increase instead of milk prize decrease ?

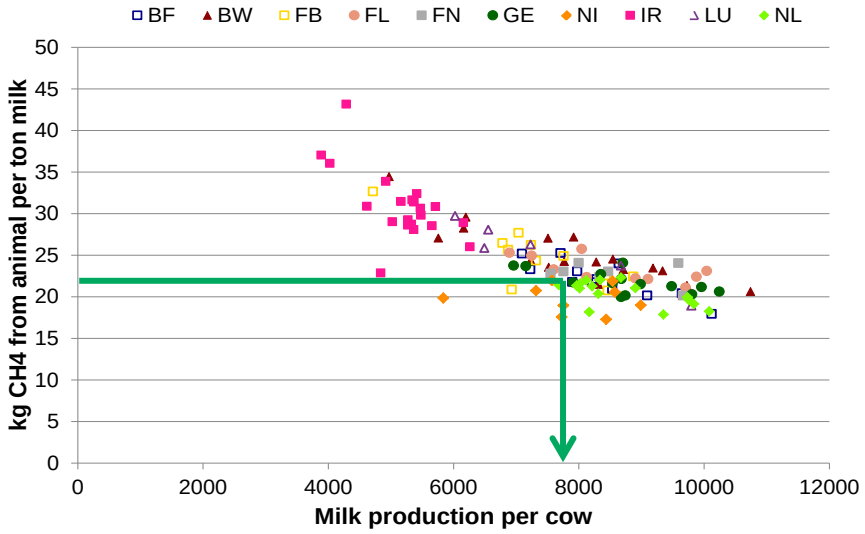
- Take into account others environnement indicators (biodiversity, energy, GES,…) synthesis of Martin Elsaesser (session 17) and of Sylvain Foray & Thomas Bechu (IDELE) (Rencontre Recherches Ruminants – 4 and 5 decembre Paris) – some job for a ‘DAIRYMAN II’ ?

Perspectives & reflections
(to be debated)

- Increase environmental performances of farming systems with very high economic results ?
  - Link between volume and Income/Working Unit : increase till 600000 l (T. Lebacq et al., 2013 – 381 specialised walloon dairy farms – Session 35) to 800000 l (DAIRYMAN), thereafter Income/WU ' is marginal.
  - How to intensify the LFS to reach such level of production without a huge environmental impact ?



(T. Lebacq et al., 2013 – Session 35-Wednesday)



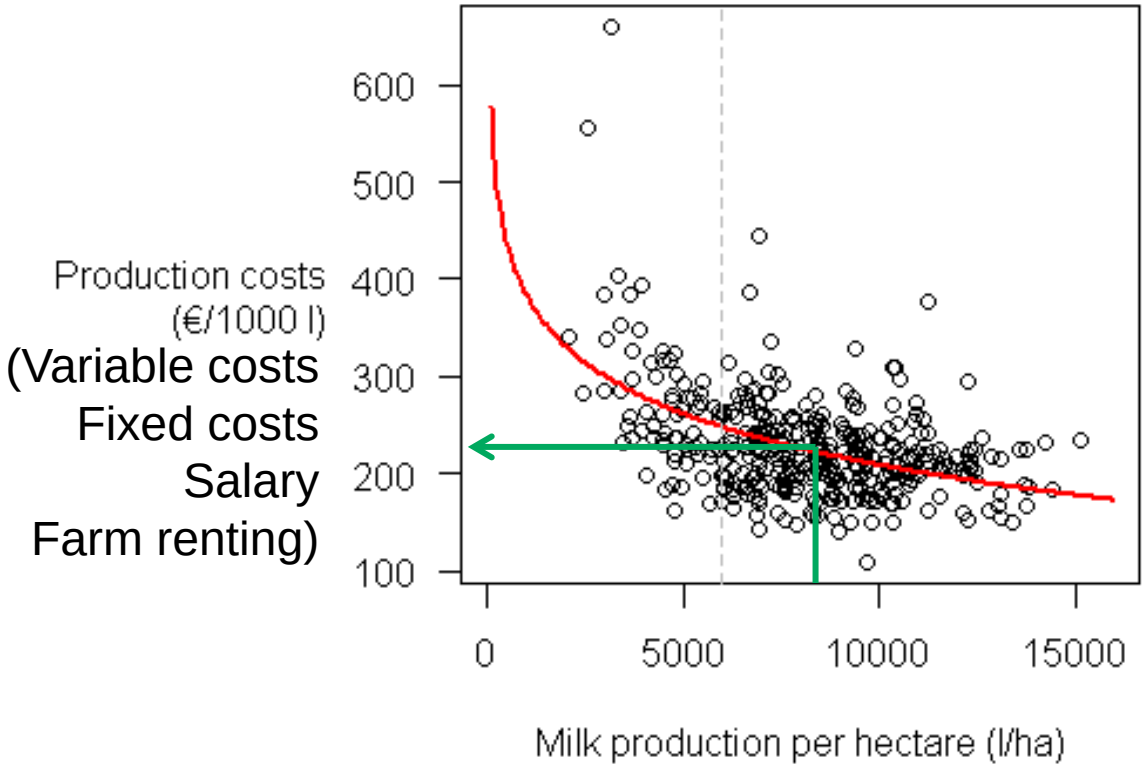
(M. Elsaesser et al., 2013 – Session 17-Tuesday)

Thresholds specific to regional carrying capacity !

Perspectives & reflections

(to be debated)

- Compatible with economical performances ?
  - One cow and its heifers/ha ➔ ‘ of autonomy level of the system (resistance) but there is a need for a herd with a good genetic potential to be able to respond to market signal (flexibility) ?
  - No antagonism with the obtention of low production costs !



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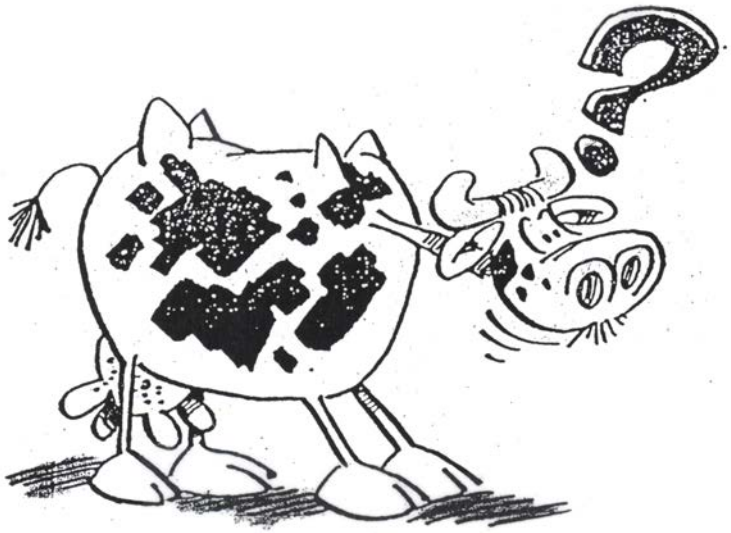

Any questions!

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