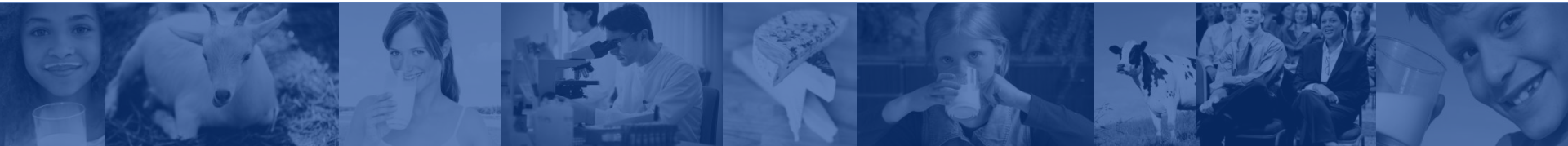
Harmonized methods for determining the environmental footprint of dairy

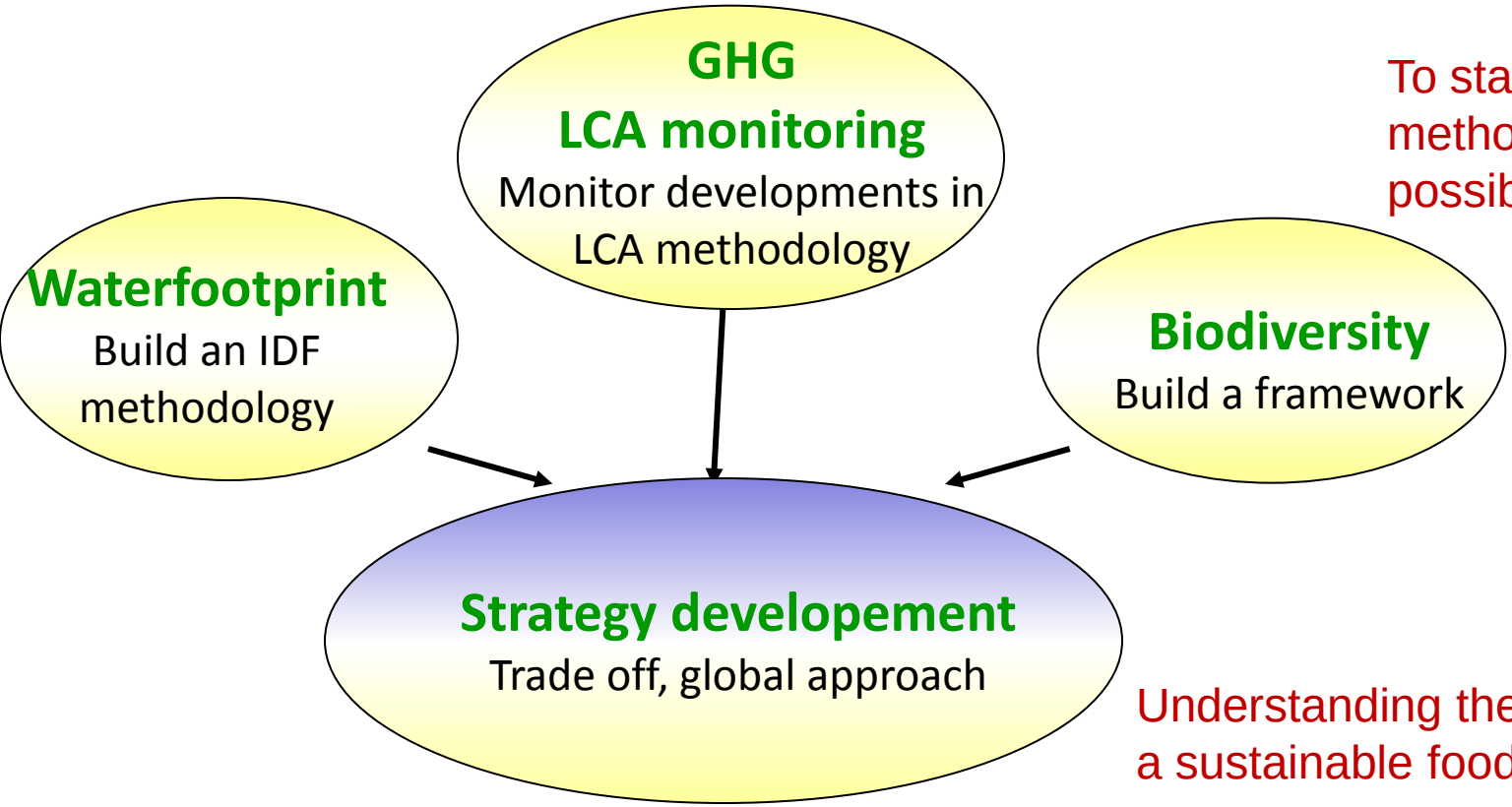
S. Bertrand

Chair of the IDF Standing Committee on Environment

FAO 04/07/2012



The SCENV programme of work 2012



To standardize methodologies when possible/tools

Understanding the role of dairy in a sustainable food system

To help continuous improvment

The carbon footprint issue

Work completed

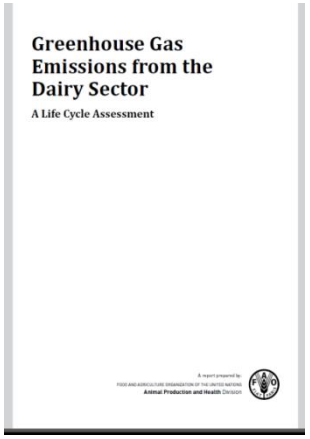
GHG emission

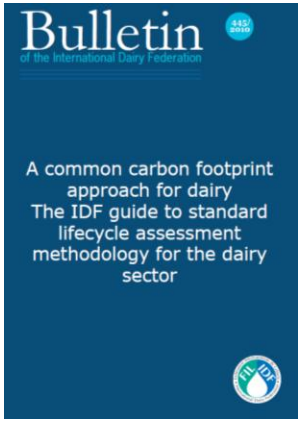
Question : what is the impact of dairy on climate change, how can we improve it ?

- **Development of specific guidelines** for dairy, based on existing standards, but give more details on :
  - Functional unit
  - Boundaries
  - Allocation
- **Evaluation of GHG emission** from the dairy sector with the FAO

Results :

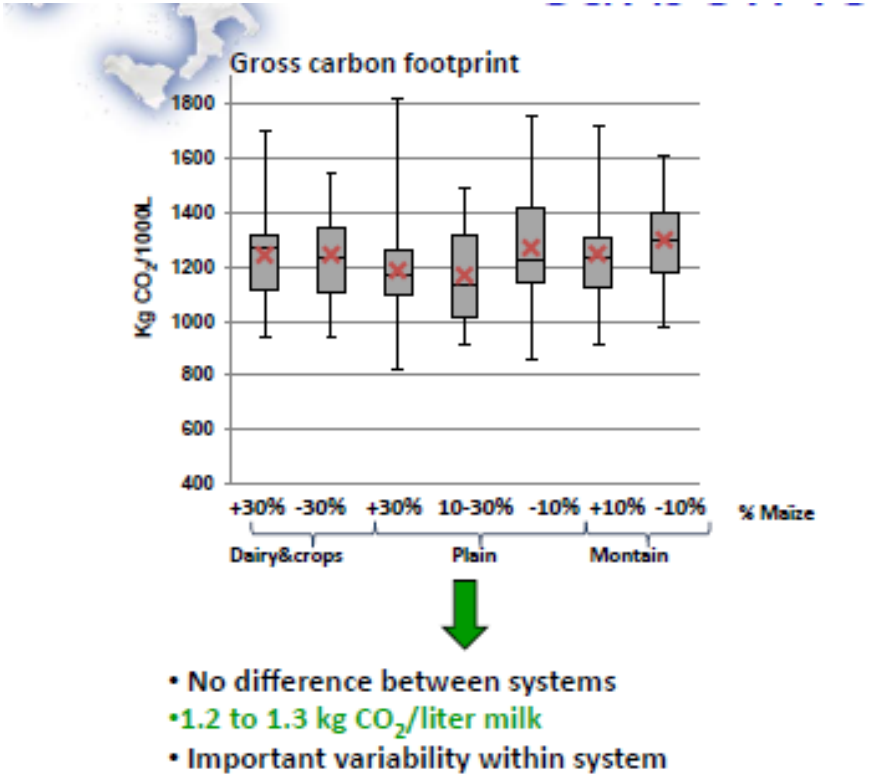
- First evaluation of emission from dairy
- Transparence, robustness in CF studies (Used by France,NZ,US…)
- A good base to identify mitigation options

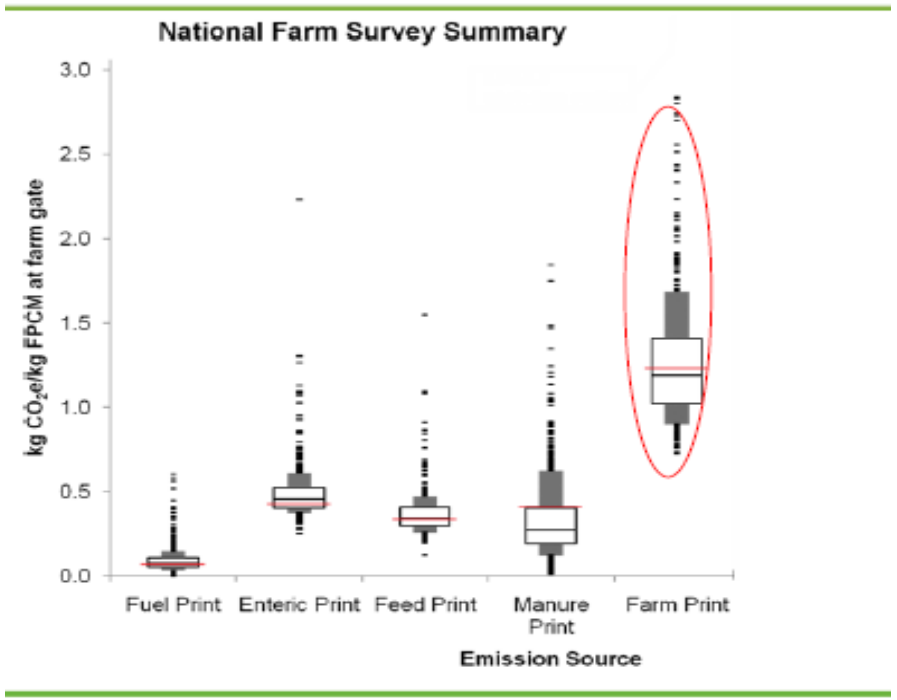




Lesson learned

- **Farm managment** practices matter (more than the type of production system)





JB. Dolle, Idele

E. Fitzgerald, innovation center for US dairy

Limits

- The guide doesn’t give any data base on **feed,** while feed production represents 20% of the result
- The choice of the **allocation** between milk/meat is still under discussion
- The guide doesn’t give any data on **carbon storage** under grassland
- The guide doesn’t give any detail on the **uncertainties** level

Next step

- **Expectation** : to make progress on these limits within the Livestock partnership

- **Update the IDF guide in 2013** : new version that will capture the output of the Livestock partnership work

The Waterfootprint issue

Work in progress

Waterfootprint

Question : what is the impact of dairy on water, how can we improve it ?

- **Development of specific guidelines** for dairy, based on existing standards (ISO, UNEP, WFN,WSI)

- **Decision to stay under the ISO umbrella** :

- LCA based approach
- Stress approach
- Quantity and quality

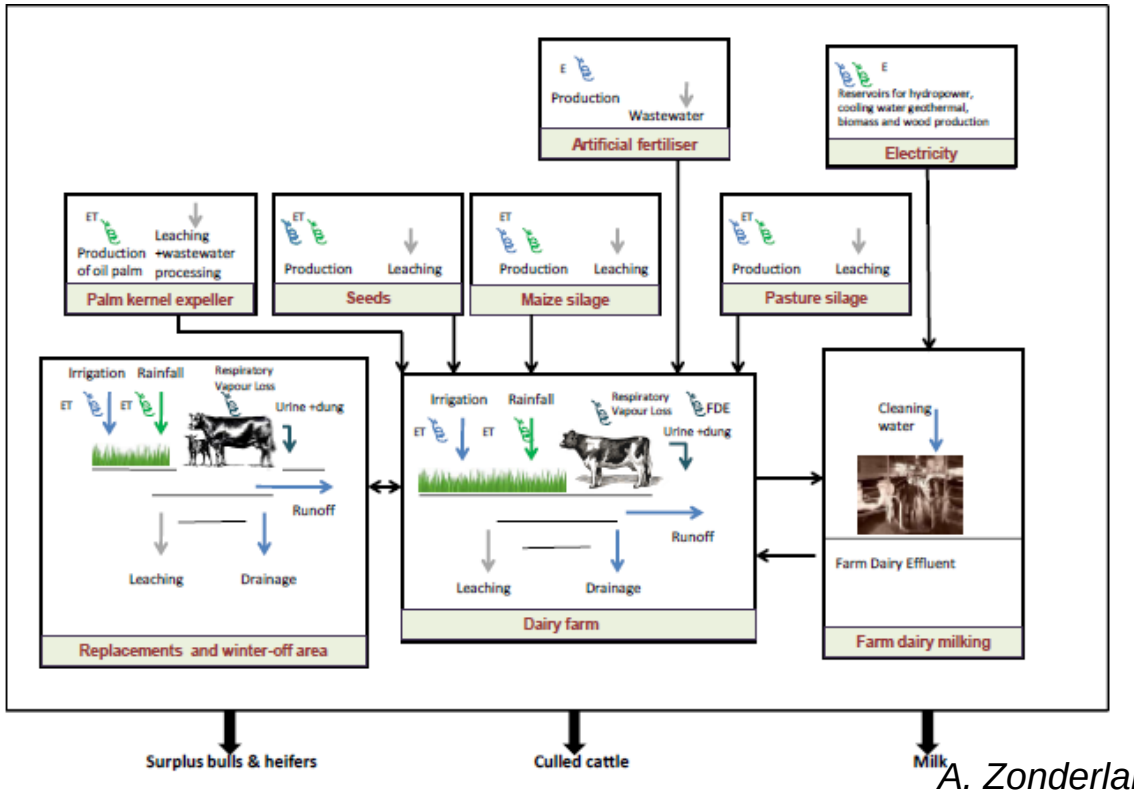
Results :

5 points under discussion :

- Water inventory
- Impact assessment
- Data
- Cases studies
- communication

Points under discussion

- **Water inventories (flows)** :
  - direct and indirect use (definition)
  - how to treat water quality (calculate the volume, drivers P/N)
  - how to treat rain water (evaluate the impact)



A. Zonderland Thomassen, Agresearch

Points under discussion

- **Impact assessment** :

Water stress index, regional and seasonal specific (environmental relevance, weighting of virtual water)

- **Data** :

Source, collection, quality

- **Case studies** :

First results already available

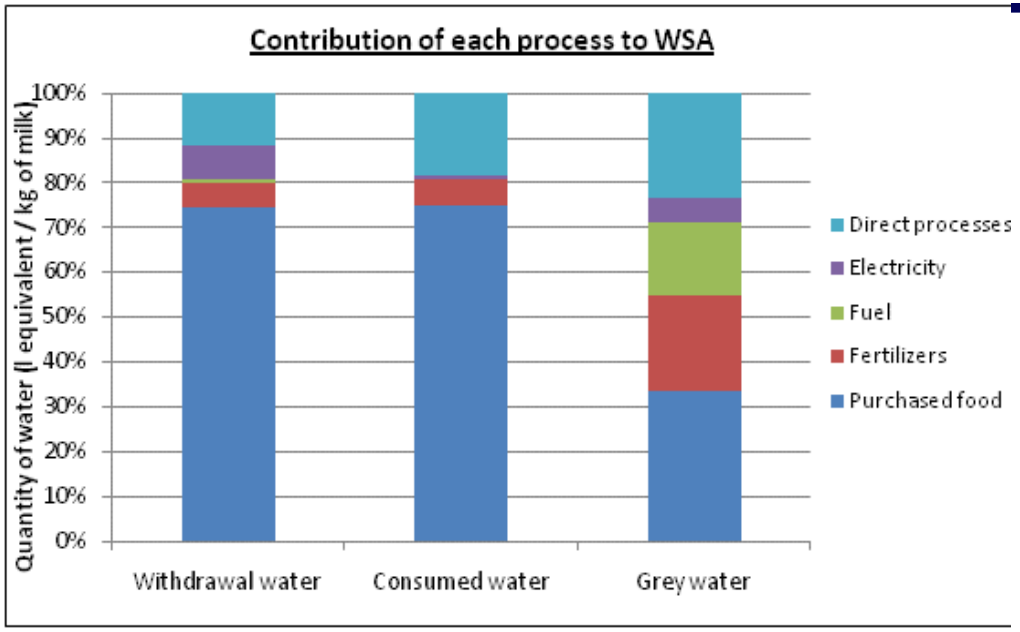
- **Communication** of the results :

Agregated values reduce relevance

Lesson learned

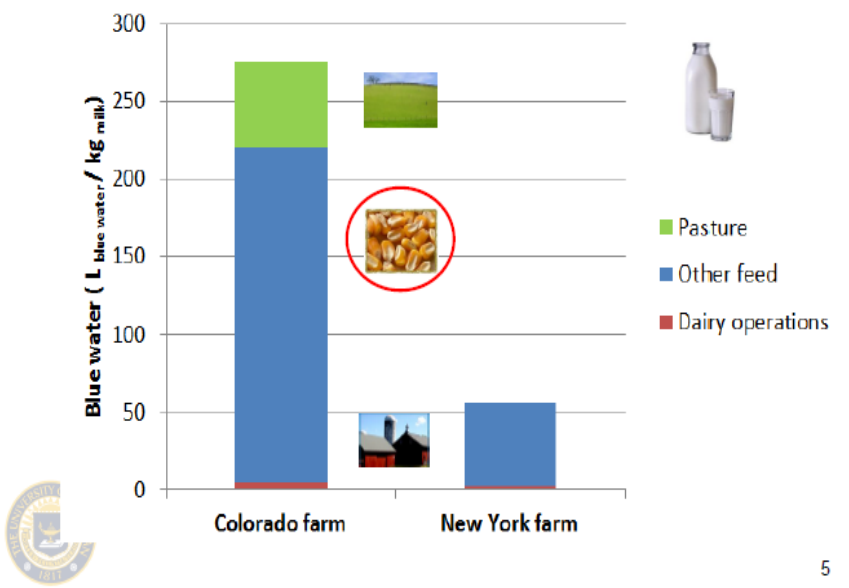
- **Feed** dominates the water impact for dairy

Case study on a French Dairy farm



A. Gac, Idele

Case study on a US Dairy farm – Blue water

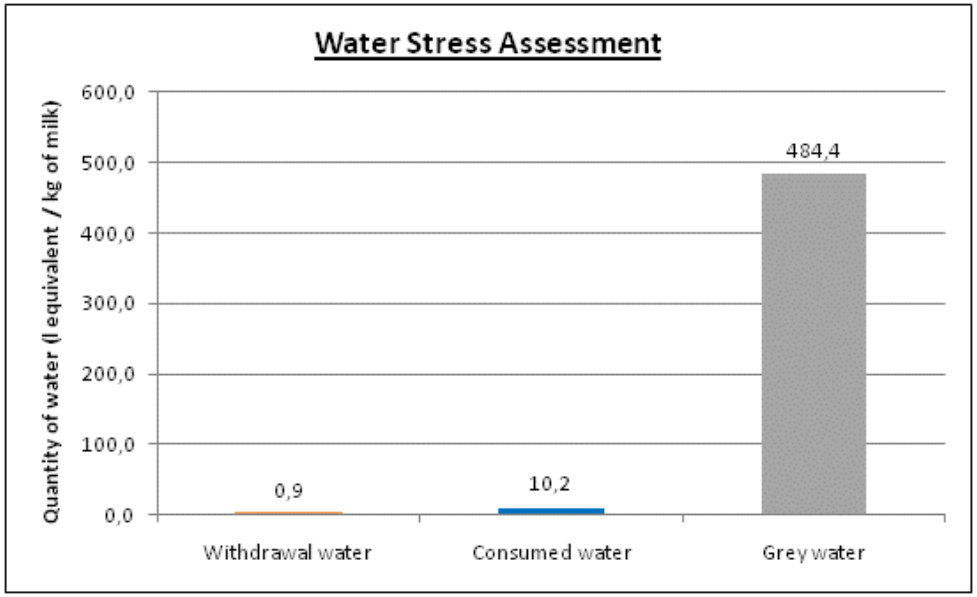


A. Asselin, UMSPH

Lesson learned

- **Water quality** is more important in actual methods than water use itself: meaning ? Double counting ?
- **Lack of data**
- Consideration of physical flow remain necessary for an appropiation by **farmers**

Case study on a French Dairy farm



Total WSA :
291,9 L H2Oe/kg FPCM

A. Gac, Idele

Next step

- The team need to agree on guidelines to calculate the waterfootprint of dairy : publication summer 2013

- **Expectation** : include the output of the Livestock partneship work in the IDF futur guide on water

The biodiversity issue

Work just started

Biodiversity

Question : what is the link between biodiversity and dairy , how can we improve it ?

Development of literature review on biodiversity indicators on dairy farm,

Development of a framework and recommendation

Results :

2 approaches identified:

- LCA land use change, impact on biodiversity (in lign with water/C but still very partial) – *negativ impacts only*

- Ecosystem services (not a full chain approach, more meaning) – *positiv impacts only*

Lesson learned on methods based on LCA

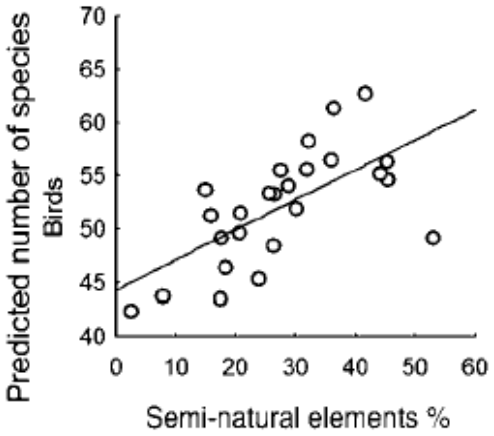
- **Spatial and temporal scale** : choice of period, need for spatial differentiation
- Methods based mainly on **vascular plants**
- Methods based on **abondance** of species (all species have the same weight)
- Results very dependant of the species you choose !
- Natural vegation is the reference :doesn’t make sense for decision making
- Expression/kg of product is difficult as biodiversity needs space !

Lesson learned on ecosytem services approach

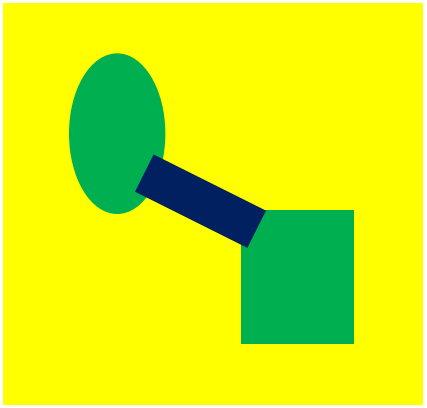
- **3 Hypothesis**

Mosaic effects
(biodiversity needs complexity)

Agro-ecological Structures
(relation between abondance of species and % of AEI)



Ecological passages/Corridors
(improve species mobilities)



+ find a link with the impact of farmers practices on biodiversity (pasture managment, stocking rate, pesticides, fertilisers…)

Next step

- The team needs to write the literature review : publication end of 2013

- **Expectation** : include the output of the Livestock partneship work in the IDF publication on biodiversity

Conclusion

- Harmonized methods and indicators are very good tools that bring more transparancy, robustness and consistency
- The main mitigation potentiel is on farm, so the indicators need to have a meaning for farmers
- The final goal is to transfer the knowledge to farmers