

**New challenges and cross-cutting issues in agricultural and rural planning  
Italian Pavilion, Monday, 31 August 2015**

# **Environmental sustainability of intensive livestock activities**

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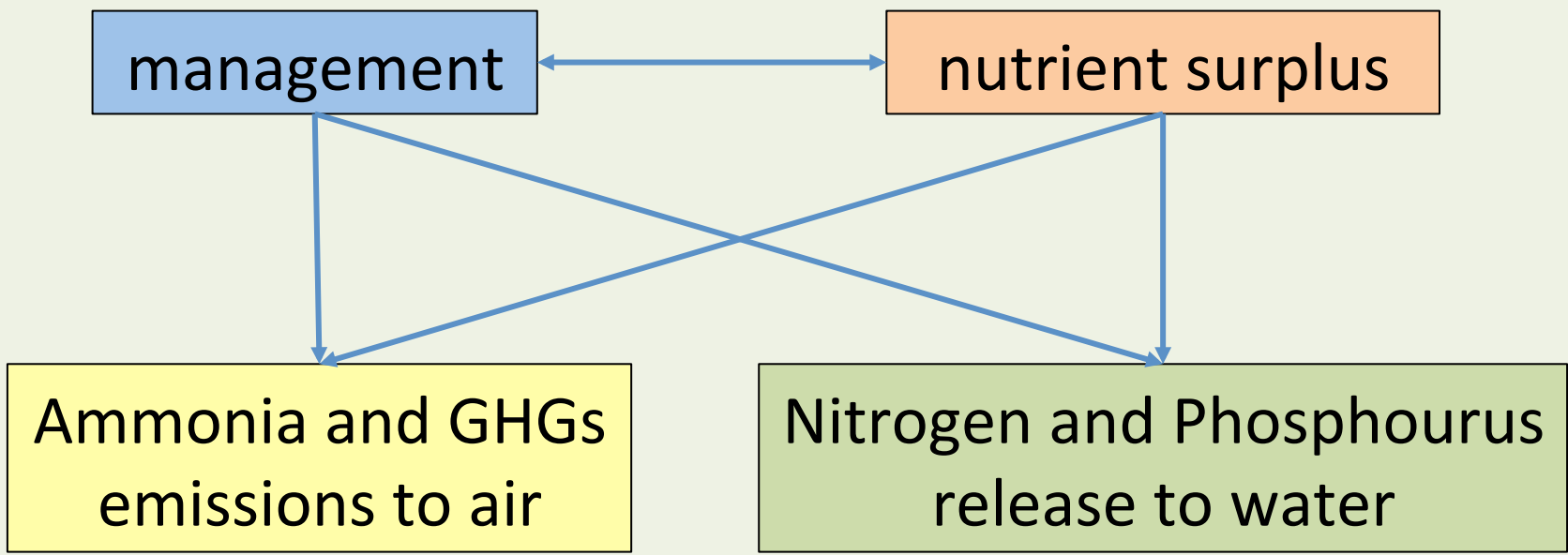
# Livestock and environment

The intensification of livestock operations has benefited production efficiency but has introduced major environmental issues, becoming a concern in both developed and developing countries.





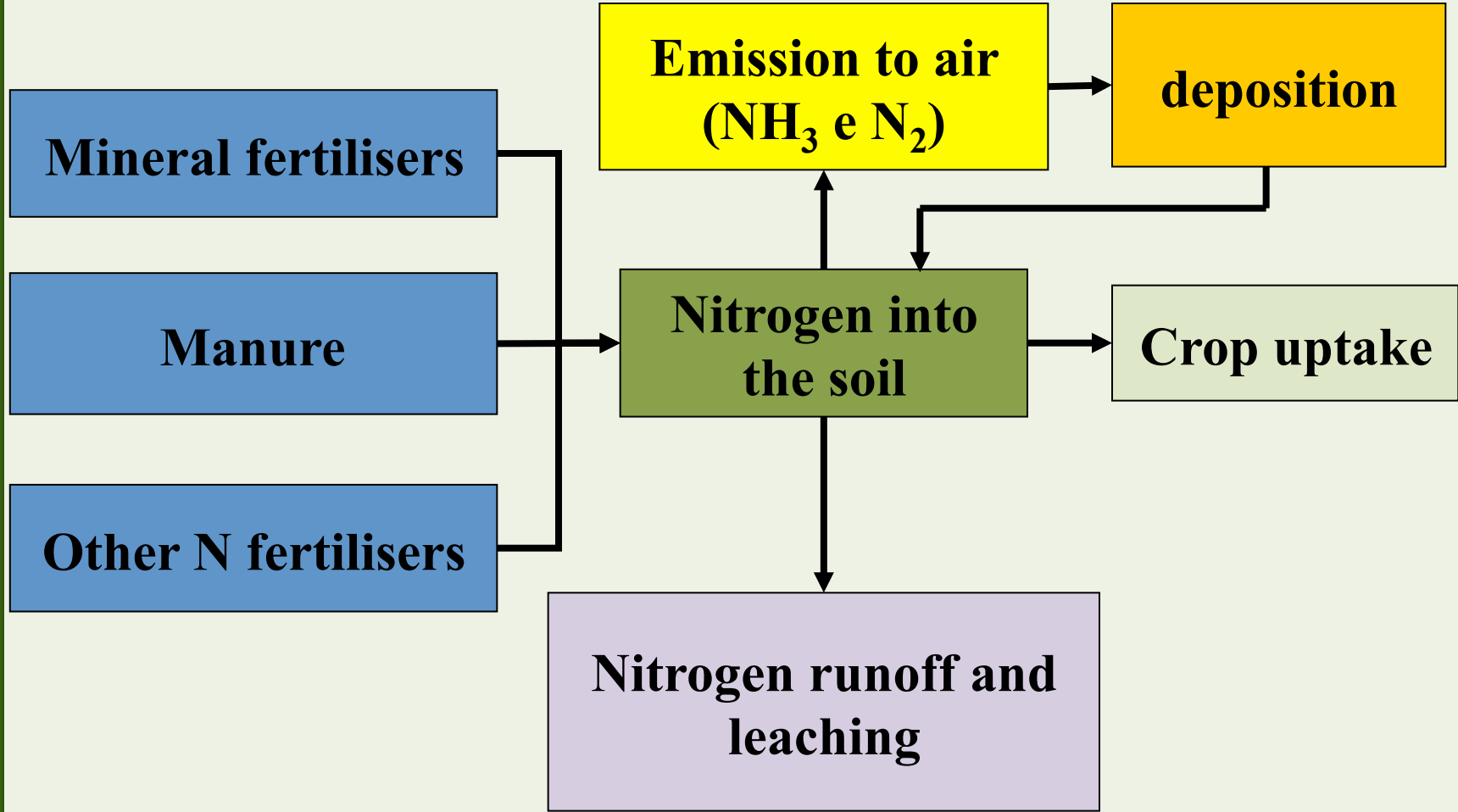
# Livestock and manure main environmental problems

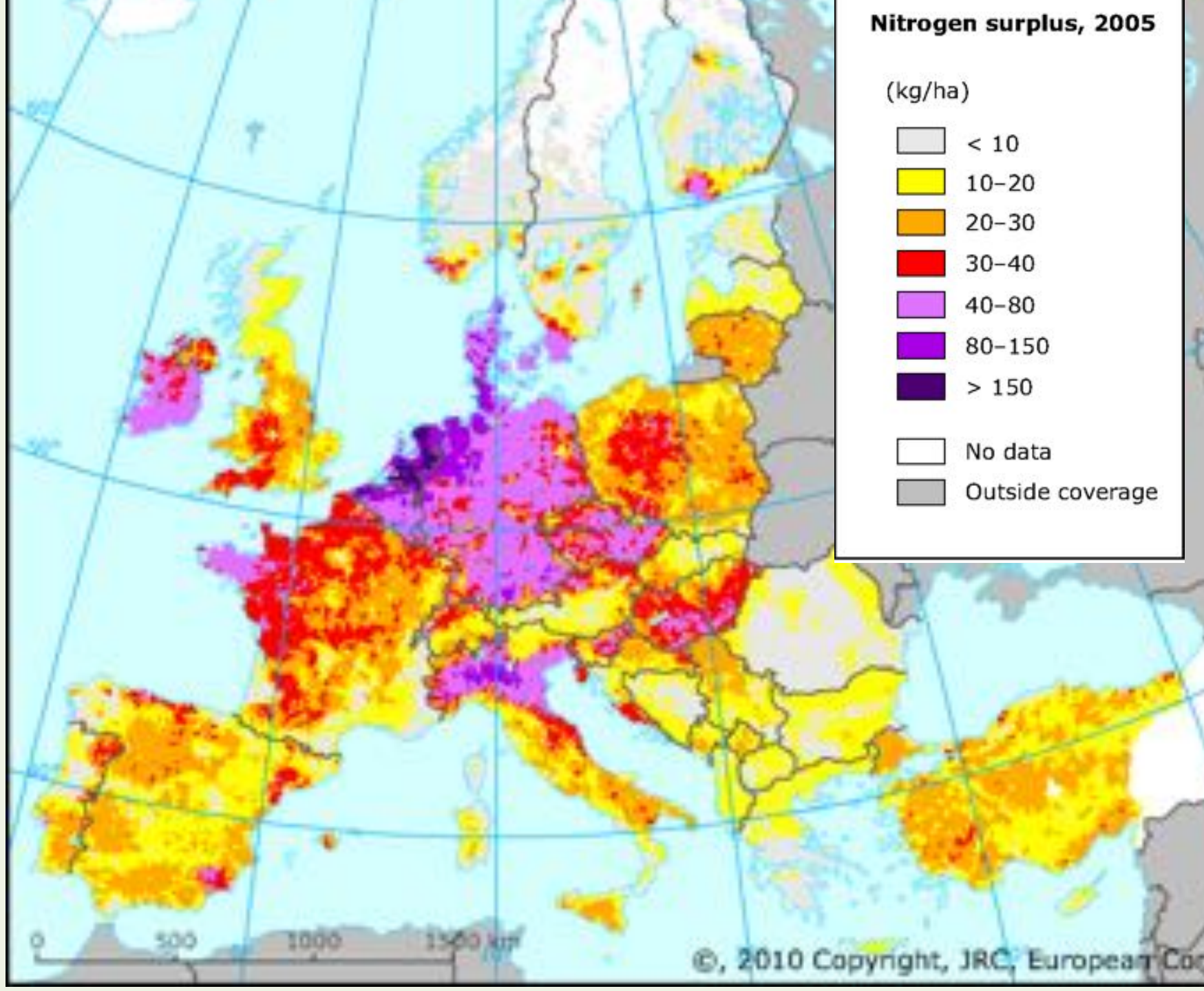


Focus on nitrogen and EU situation












# Main Nitrogen fluxes





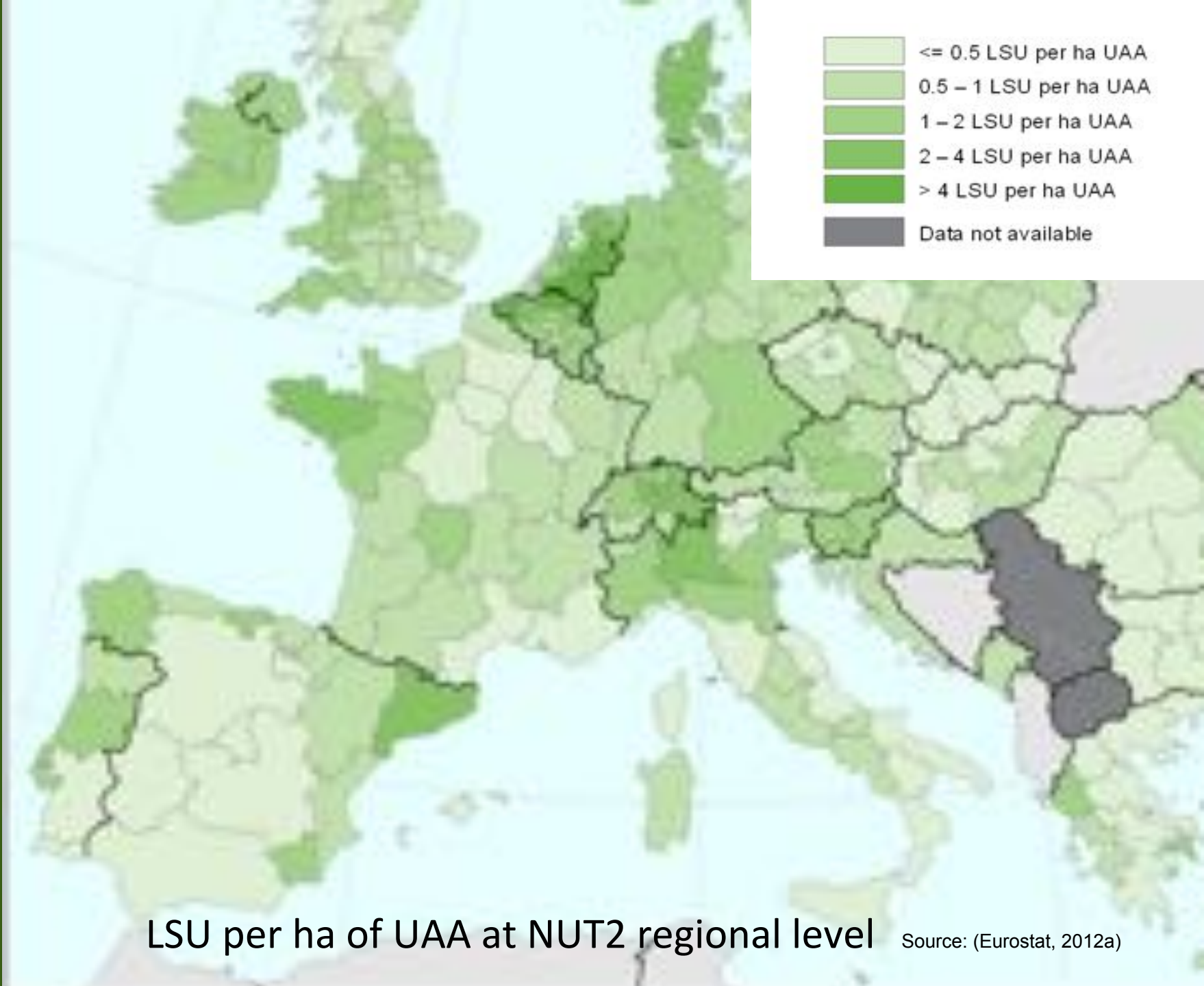
### Nitrogen surplus, 2005

(kg/ha)

-  < 10
-  10-20
-  20-30
-  30-40
-  40-80
-  80-150
-  > 150
  
-  No data
-  Outside coverage

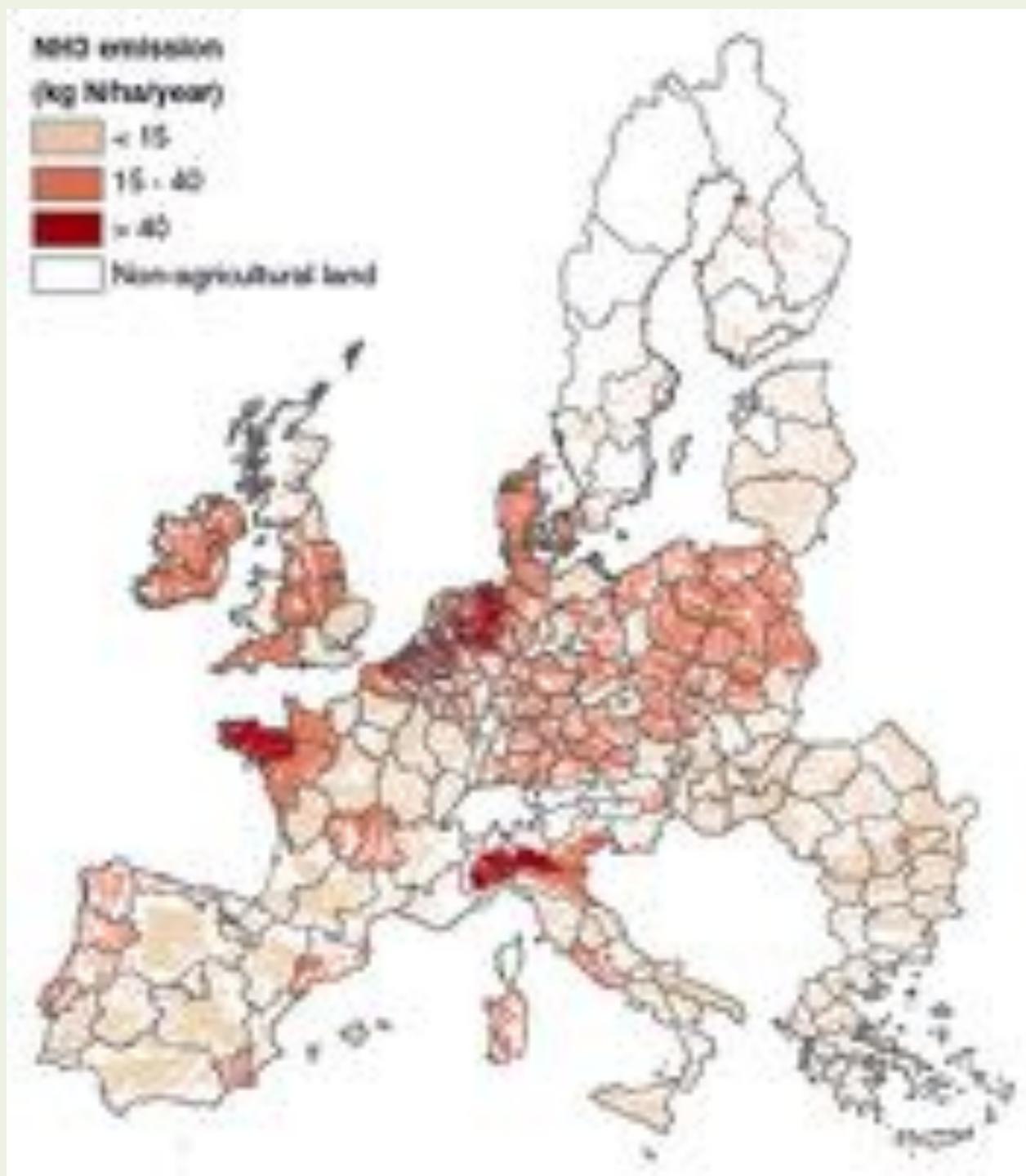
0 500 1000 1500 km

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LSU per ha of UAA at NUT2 regional level

Source: (Eurostat, 2012a)



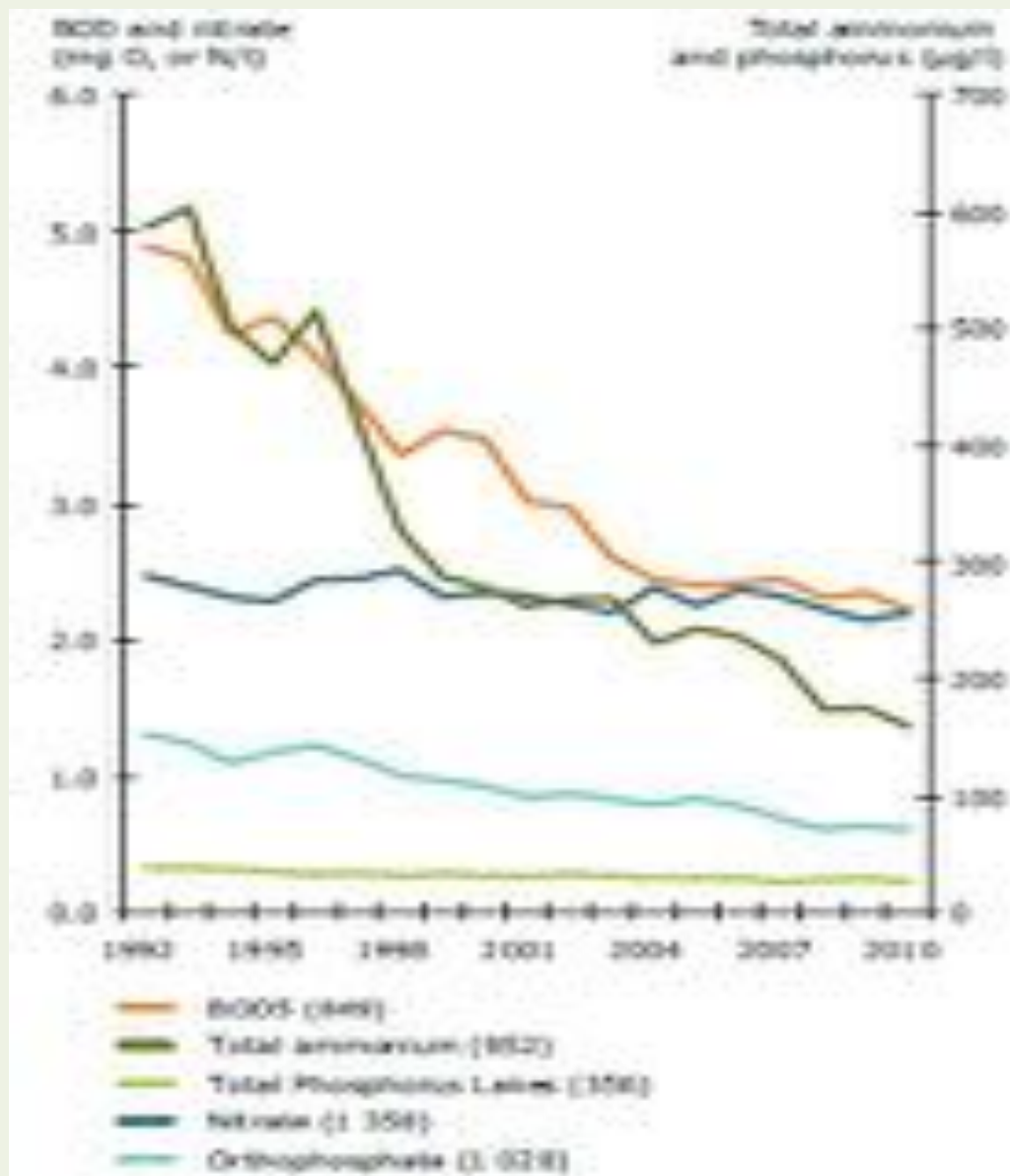


# European regulations related to diffuse pollution

- Nitrate directive (1991)
- The IPPC Directive (1996, updated 2008, recast in 2010 as IED)
- Water Framework Directive (2000)
- Cross-compliance - CAP

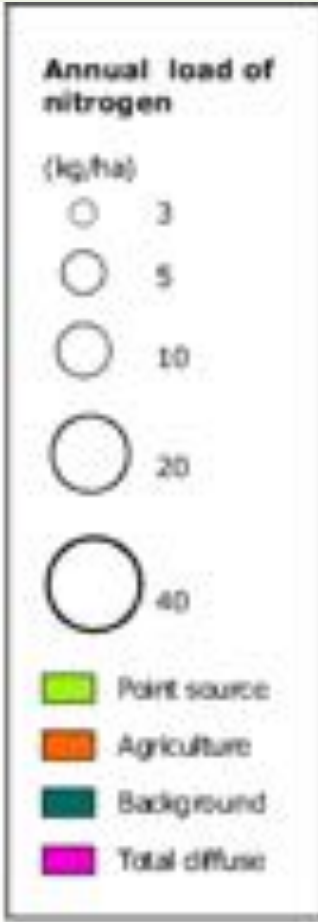
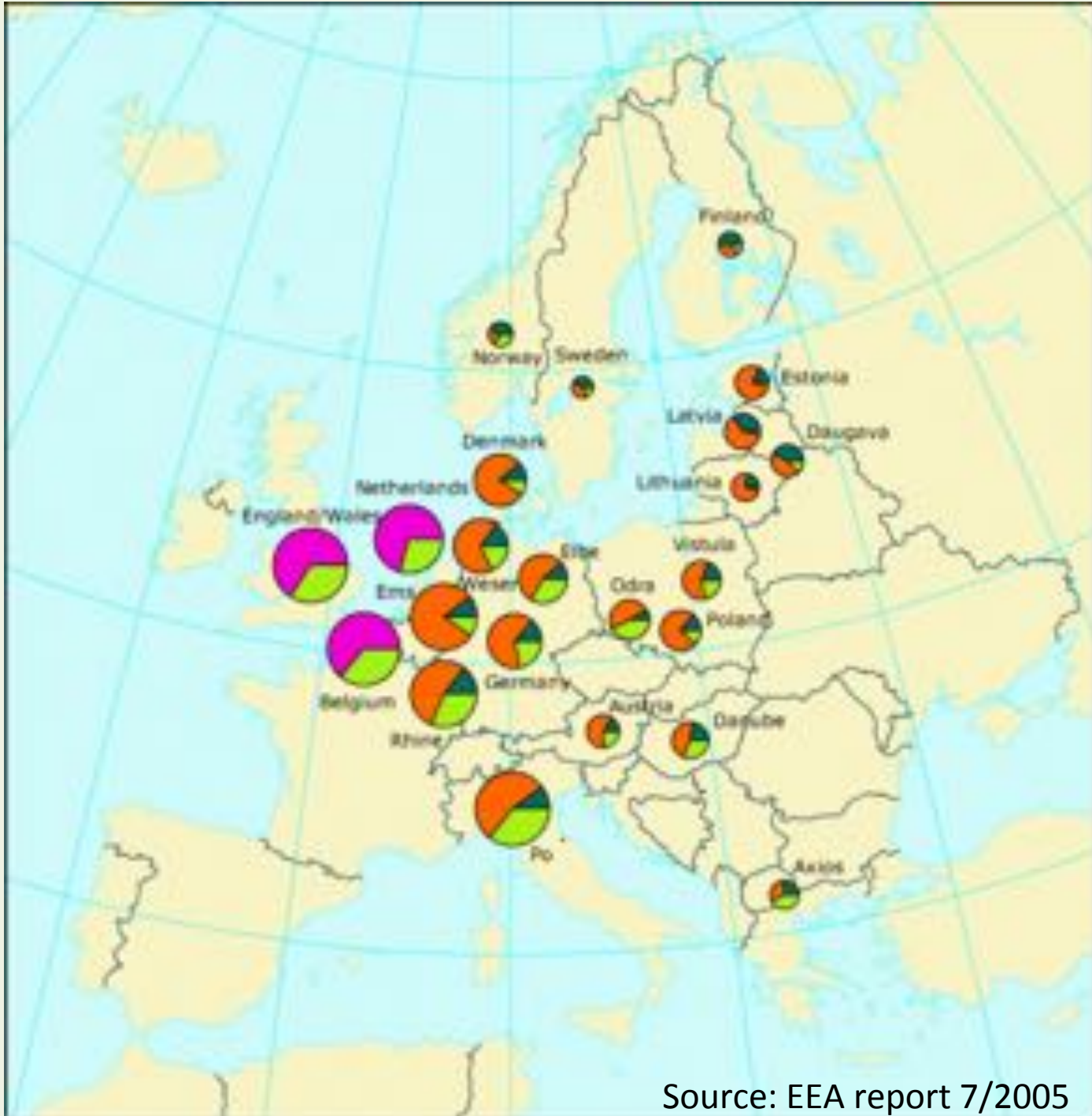


# Has water quality improved?



Source: European Waters — Current Status and Future Challenges, EEA 2012

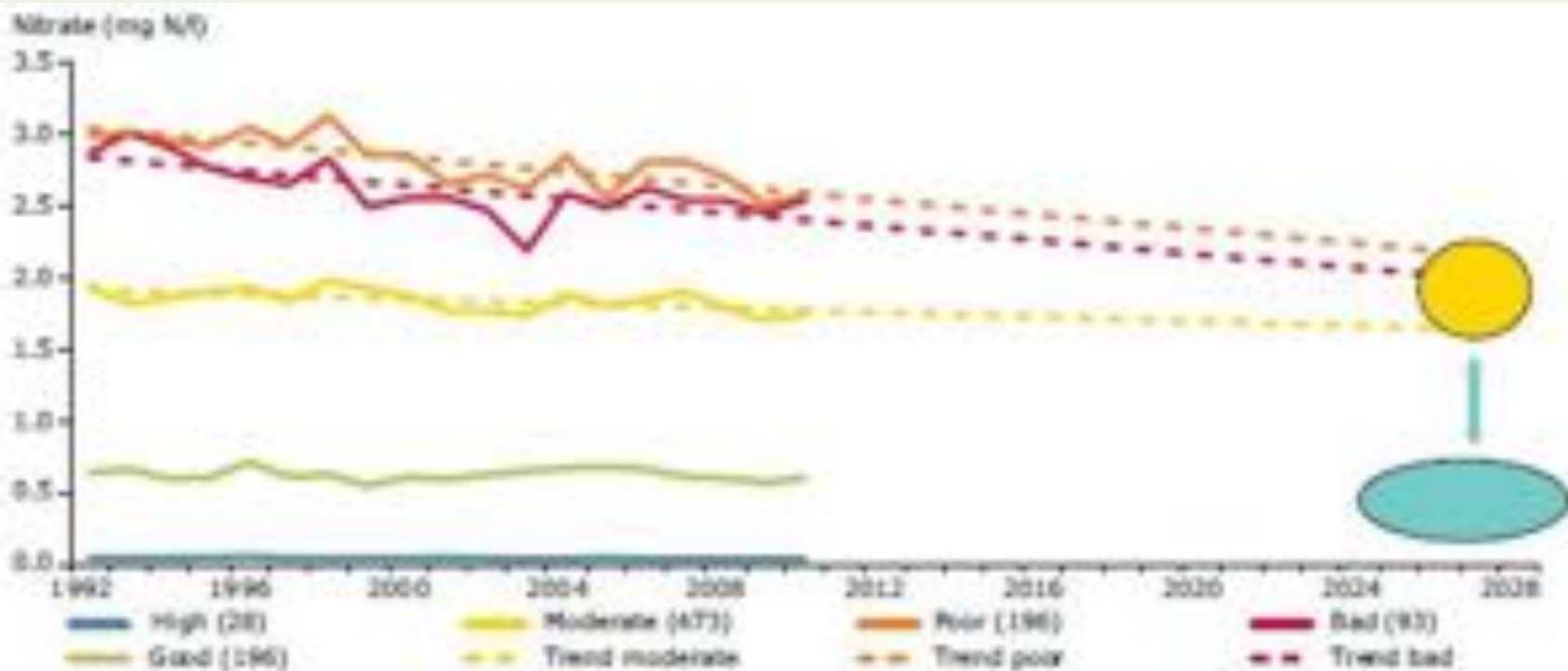




Source: EEA report 7/2005



Nitrate concentration in rivers can be taken as an indication of 'diffuse' pollution, mainly from agricultural sources. Agriculture contributes 50–80 % of the total nitrogen load observed in Europe's freshwater.



*Trends in nitrate-N concentrations in different categories of waters classified on their median nitrate-N concentrations, 1992-2012. Source: EEA (2012).*

# Actions to reduce environmental impact

- Reduce nutrient surplus in intensive livestock areas
- Increase nitrogen efficiency (from manure and from mineral fertilisers) reducing losses
- Better nutrient balance with crop requirement





# Possible Best Management Practices (BMPs)

- Reduce pressure and increase nutrient efficiency
  - Avoid nutrient surplus
  - Define a Nutrient Management Plan
  - Build suitable storages for manure
  - Use adequate spreading systems
  - Avoid spreading manure and fertiliser in unsuitable conditions



**DiSAA**

Structures and Environment Group



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E AMBIENTALI - PRODUZIONE,  
TERRITORIO, AGROENERGIA





# BMPs

- Reduce nutrient transport
  - Do not spread at high risk times
  - Do not spread slurry on sloped fields
  - Site solid manure field heaps away from watercourses/field drains
  - Solid manure storage on impermeable basis and collect leachate
  - Use buffer strips
  - Incorporate manure into the soil



NO



YES



NO



YES



YES



YES



# Strategies to implement BMPs

- Rules (minimum requirements)  
Eventual support to investments
- Incentives to improve the environment  
Support=extra cost
- Inspection and penalties system  
cross-compliance or fee
- Guidelines and advisory service (code of good agricultural practice)



# Can BMPs be the solution?

- The implementation of BMPs can reduce the environmental impact of livestock activities, although there are limitations due to difficulties in the introduction and the associated costs.
- Livestock policies for the future should have a global approach, considering the trend in emerging countries





# Conclusions

- Livestock production should have a better integration within other agricultural and agri-food activities to have a better use of both its inputs and its outputs.
- New waste management methods should be introduced to switch back to a recycling view of manure handling. Treatments can have a relevant role.
- Need to better address other pollutants like antibiotics, pathogens
- Need new measuring devices and global methods to assess the viability of production chain and food supply (Life Cycle Assessment).

# Thank you for your attention!