

Is the Farm-to-Fork ambition sufficient to keep nutrients (nitrogen) within EU boundaries

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Ambition green deal and its basis

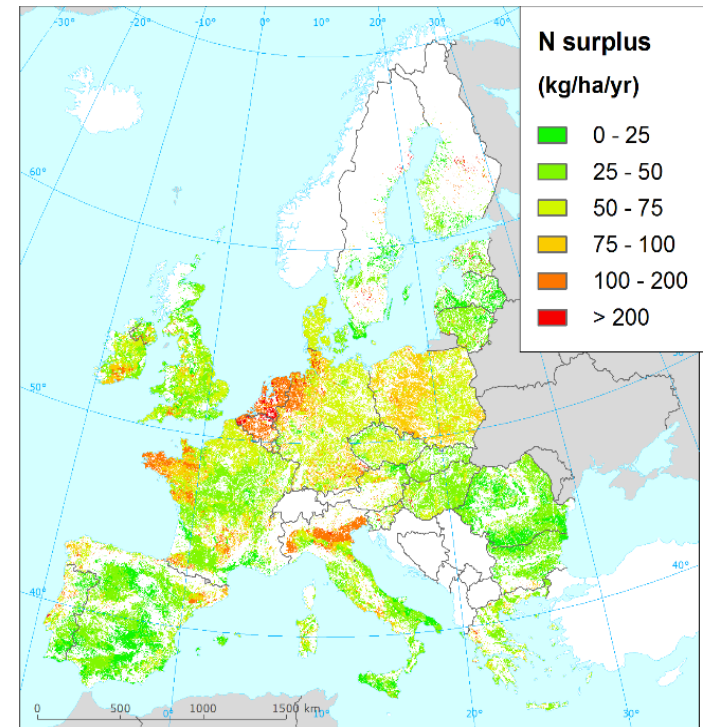
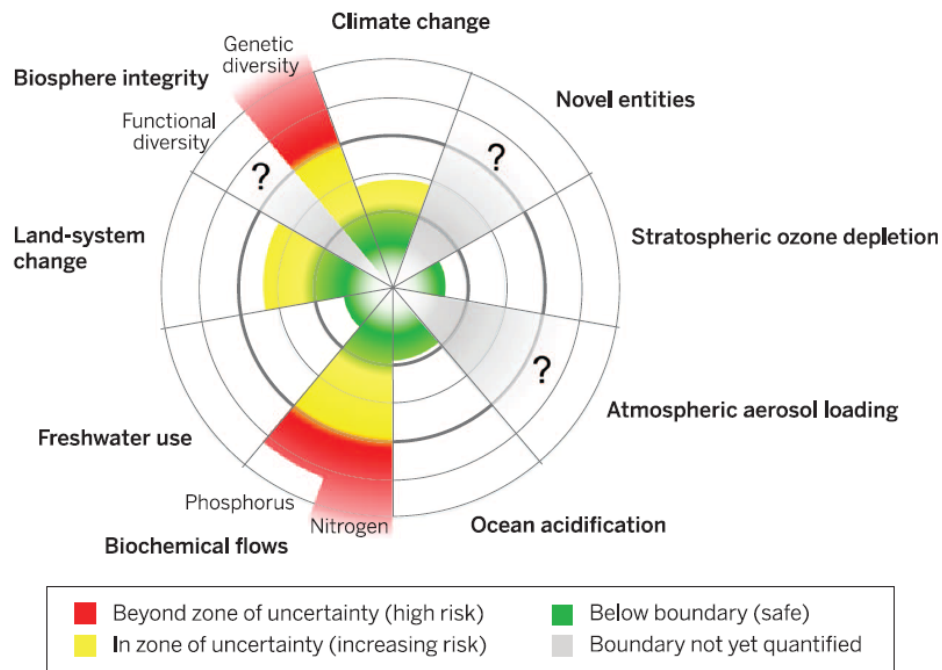
Ambition in F2F for 2030:

- Reduction of nutrient losses by at least 50%
- Related reduction of use of fertilisers by at least 20%

while ensuring that there is no deterioration in soil fertility.

Basis is possibly planetary boundaries in EAT-Lancet Commission, although this is related to inputs

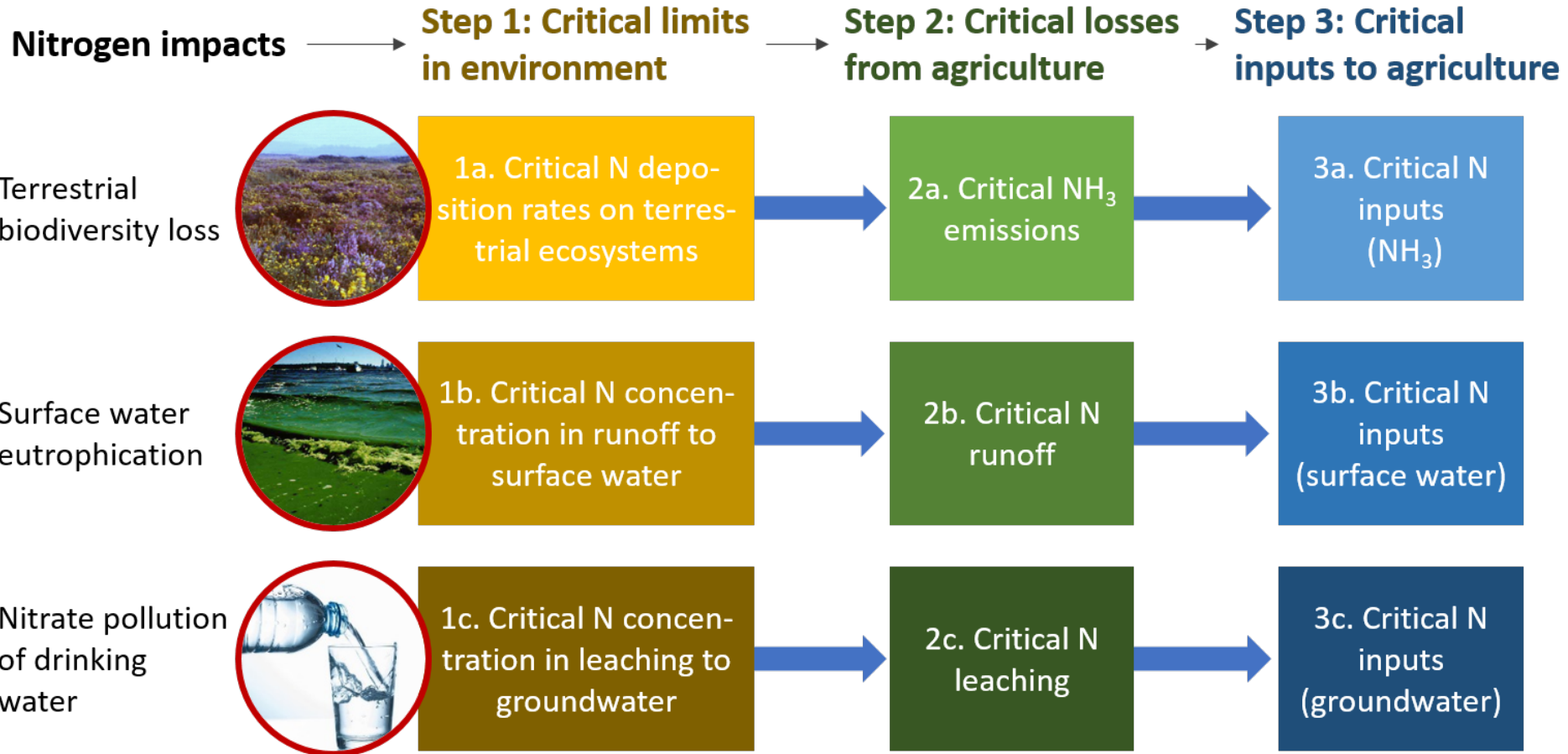
- N: Current **130** TgN/yr; Boundary **90** Tg N/yr (65–90 is high ambition surface water quality; 90–130 is lower ambition surface water quality)
- P: Current is **20** TgP/yr; Boundary is **8** Tg P/yr (6–12 long term ambition; 8–16 short term ambition)



Source: Steffen et al. 2015

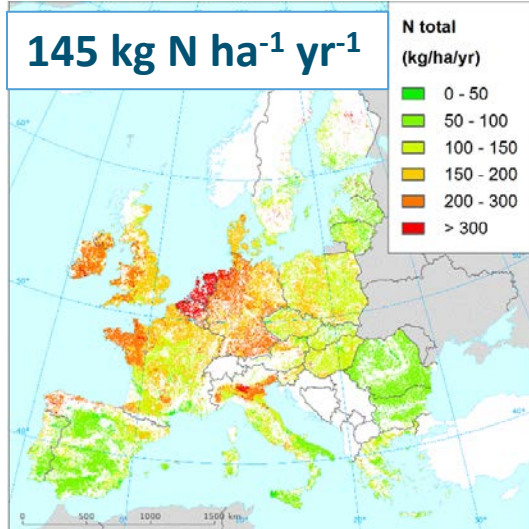
The N inputs and crop N output, and thus N surplus, varies
 Similarly, there are spatially variable 'nitrogen boundaries'

Calculate critical N losses and N inputs from environmental criteria

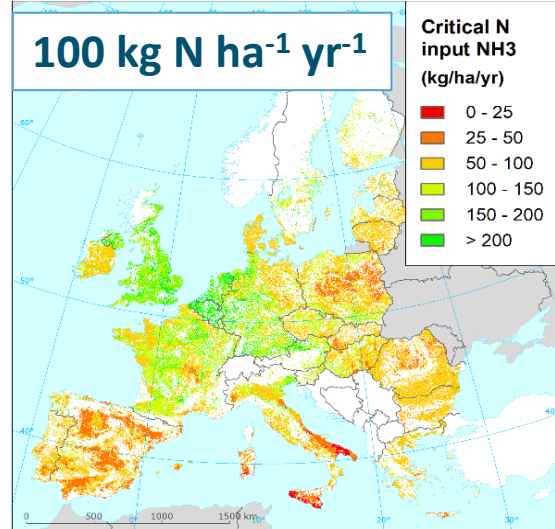


Necessary decrease in N inputs to protect terrestrial and aquatic ecosystems

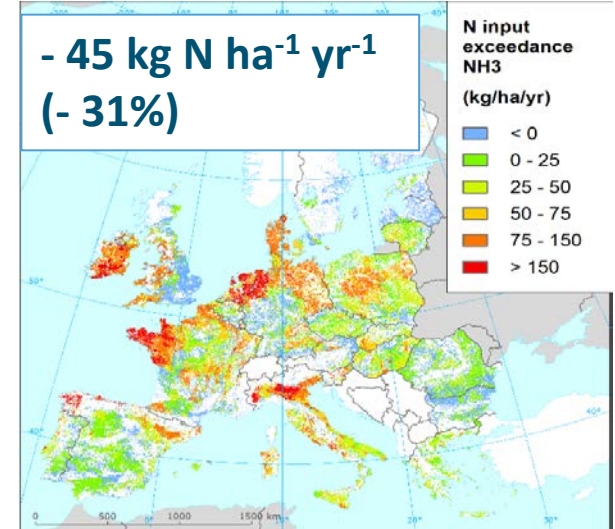
Actual N inputs



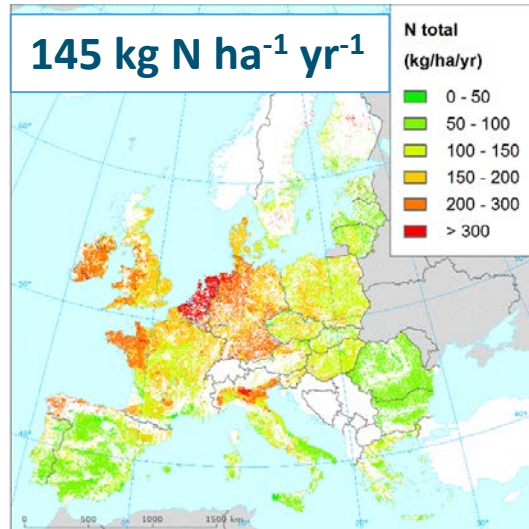
Critical N inputs for air emissions



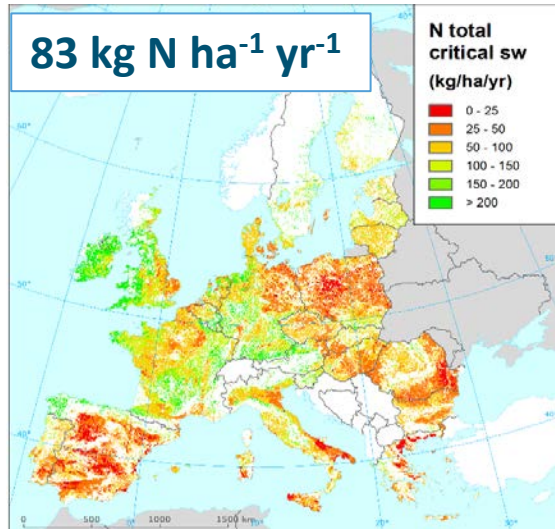
Actual - Critical N inputs



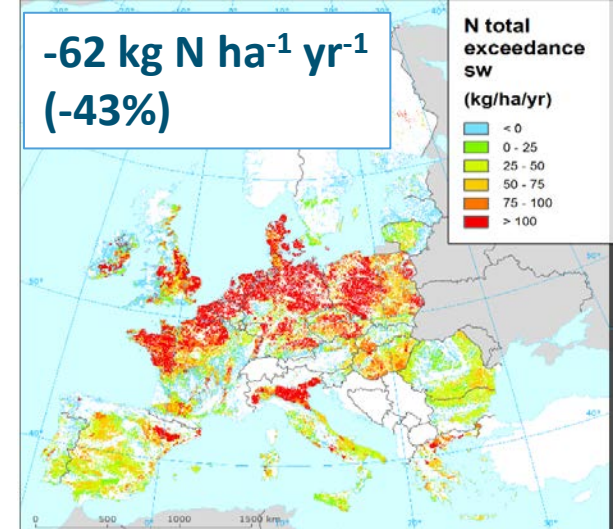
Actual N inputs



Critical N inputs for surface water

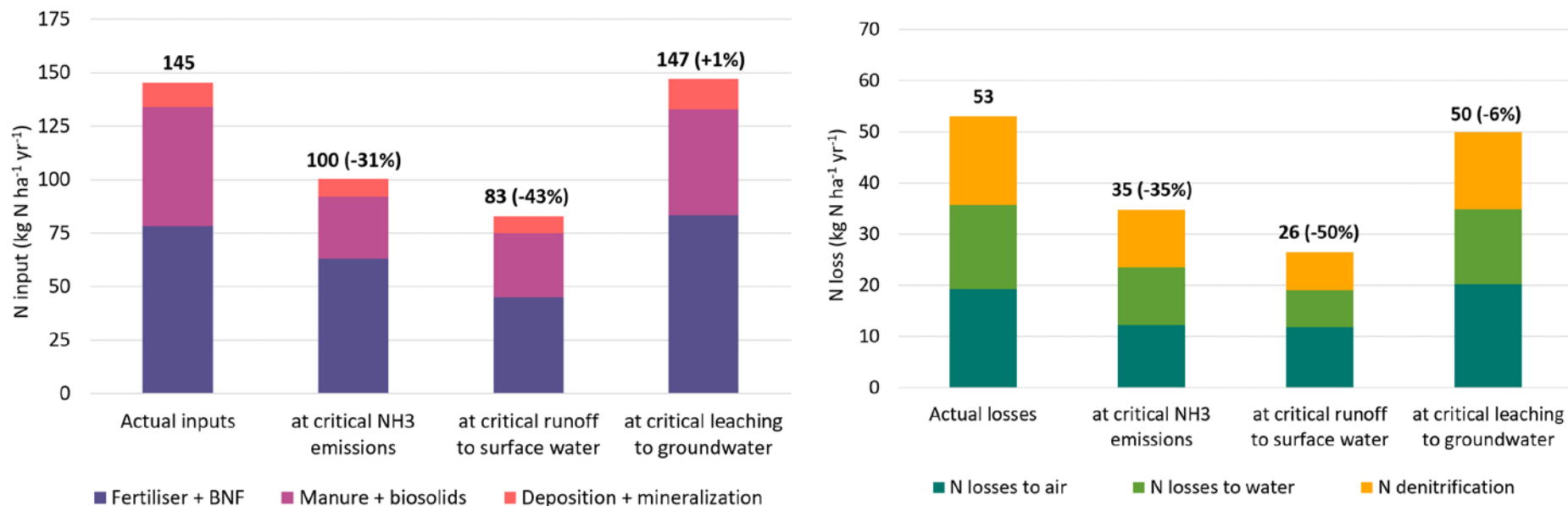


Actual - Critical N inputs



Source: De Vries et al. 2020 (nearly out)

Actual and critical N inputs and N losses at EU level



Source: De Vries et al. 2020 (nearly out)

Conclusions

Ambition to reduce N losses by 50%:

- Seems overall in line with needed N runoff reduction in view of surface water quality but less seems needed in view of NH_3 emission reduction
- Needs to be spatially different: higher in hot spots and (much) lower or no reduction needed in extensive regions

N loss reductions are possible by:

- Increasing the nitrogen use efficiency of fertiliser/manure application
- Reducing livestock production/crop yields when this is insufficient

Questions?

