



HIGH LEVEL FORUM
on sustainable plant nutrition

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Needed improvements in nitrogen use efficiency to achieve environmental quality objectives: the EU case

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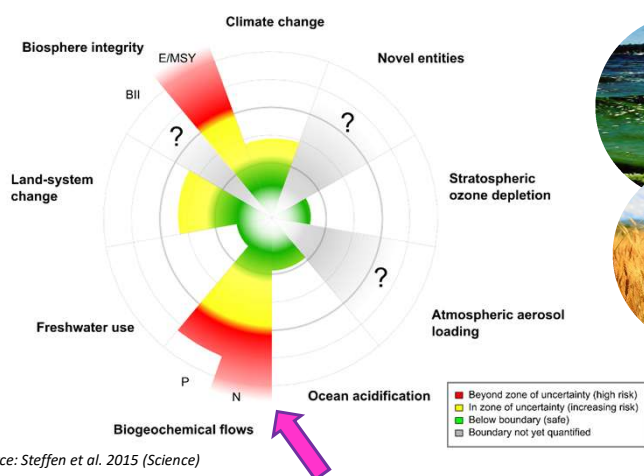


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The problem:

'Planetary boundaries' related to human N fixation have been exceeded...

... but nitrogen is both a matter of 'too much' and 'too little'.



→ Can we derive spatially explicit 'nitrogen boundaries'?



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Three core questions of our research:



1. At which nitrogen input do we exceed environmental thresholds? (“**Critical N input**”)



2. How much nitrogen input is required for crop production? (“**Required N input**”)



3. How can environmental and crop production targets be reconciled? (“**Necessary improvements in nitrogen use efficiency**”)



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1. At which nitrogen input do we exceed environmental thresholds? (“**Critical N inputs**”)

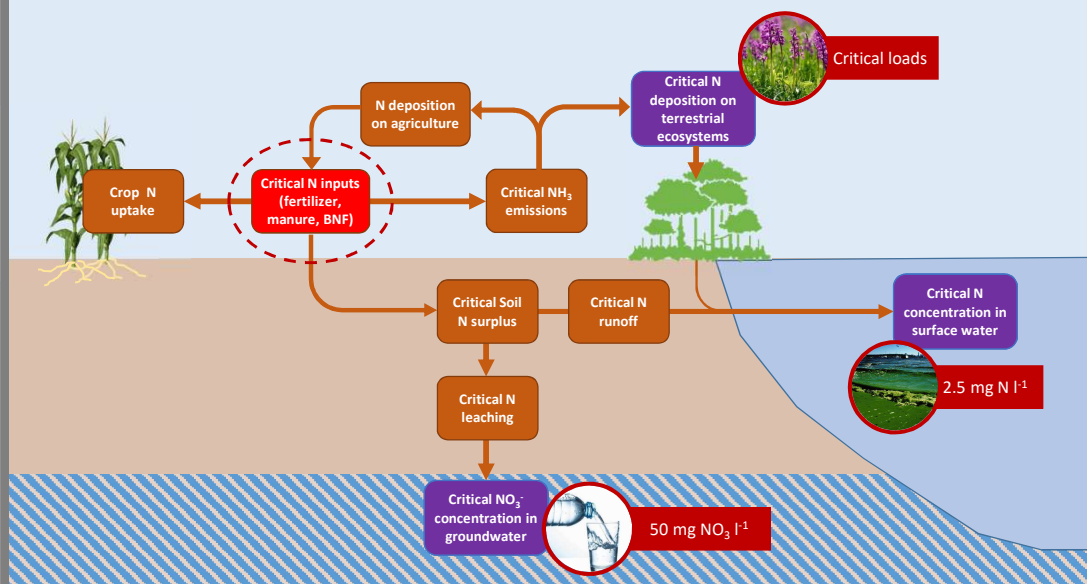
1. Critical N inputs



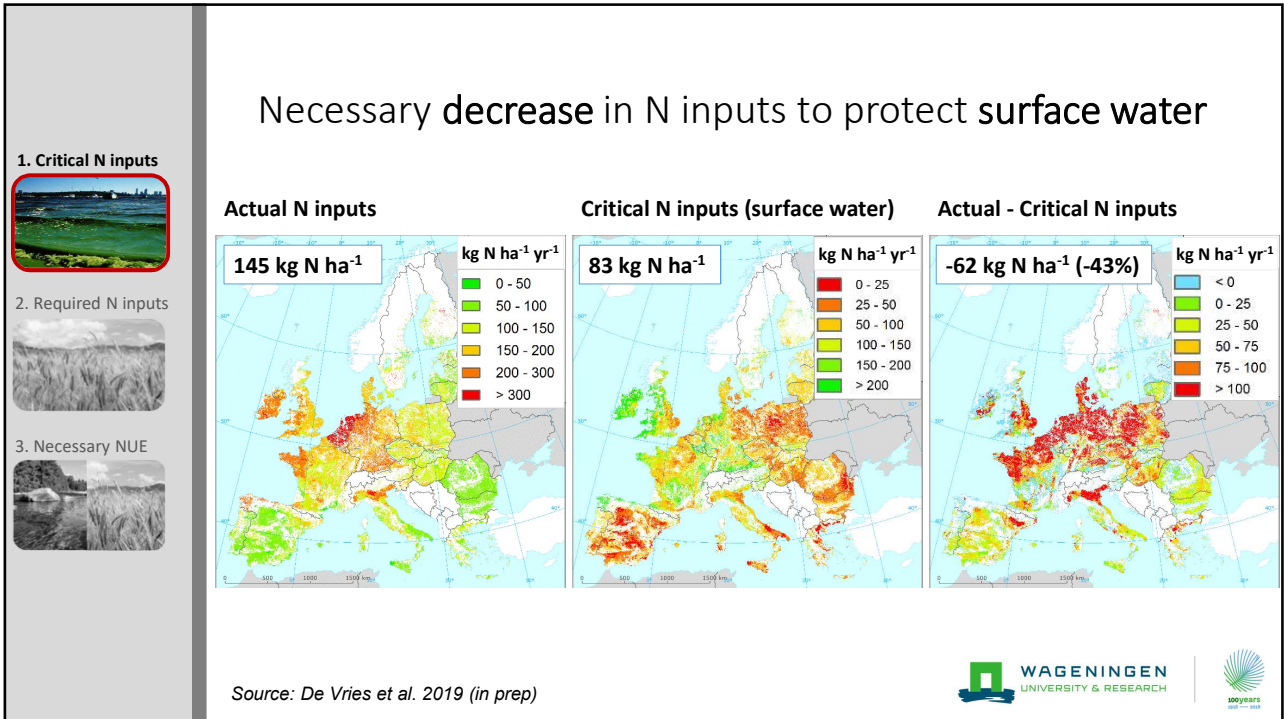
2. Required N inputs



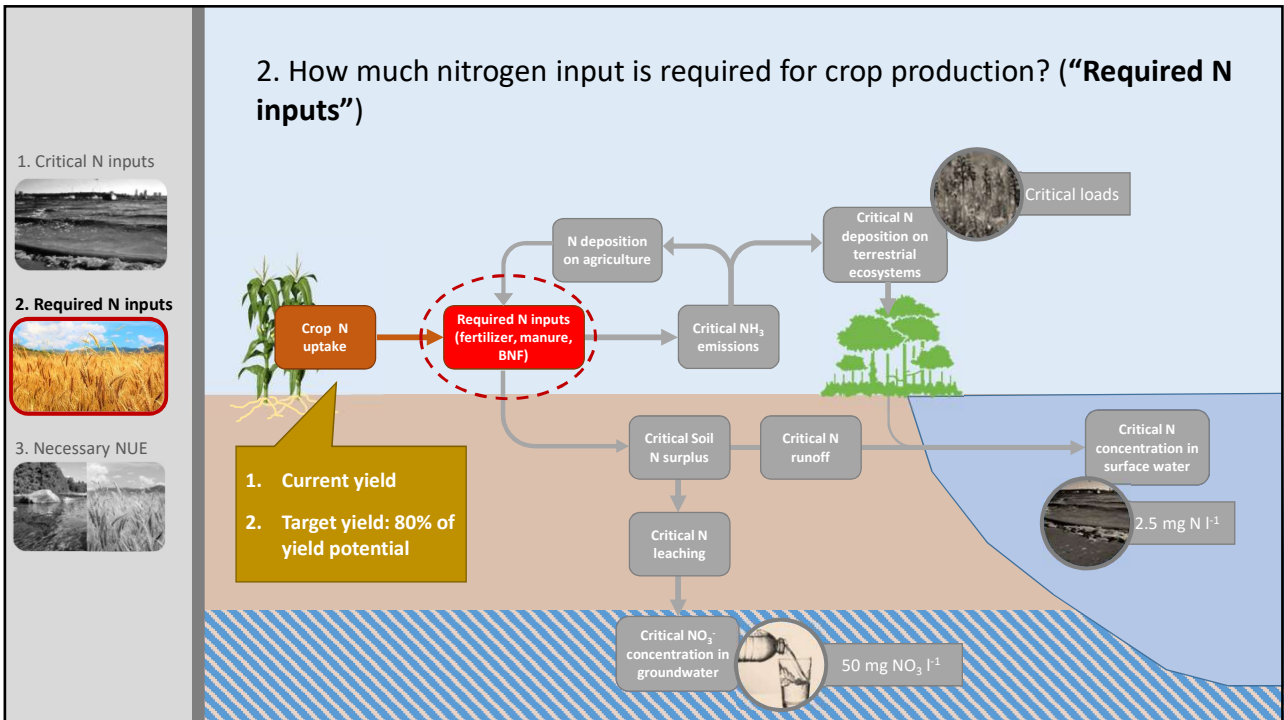
3. Necessary NUE



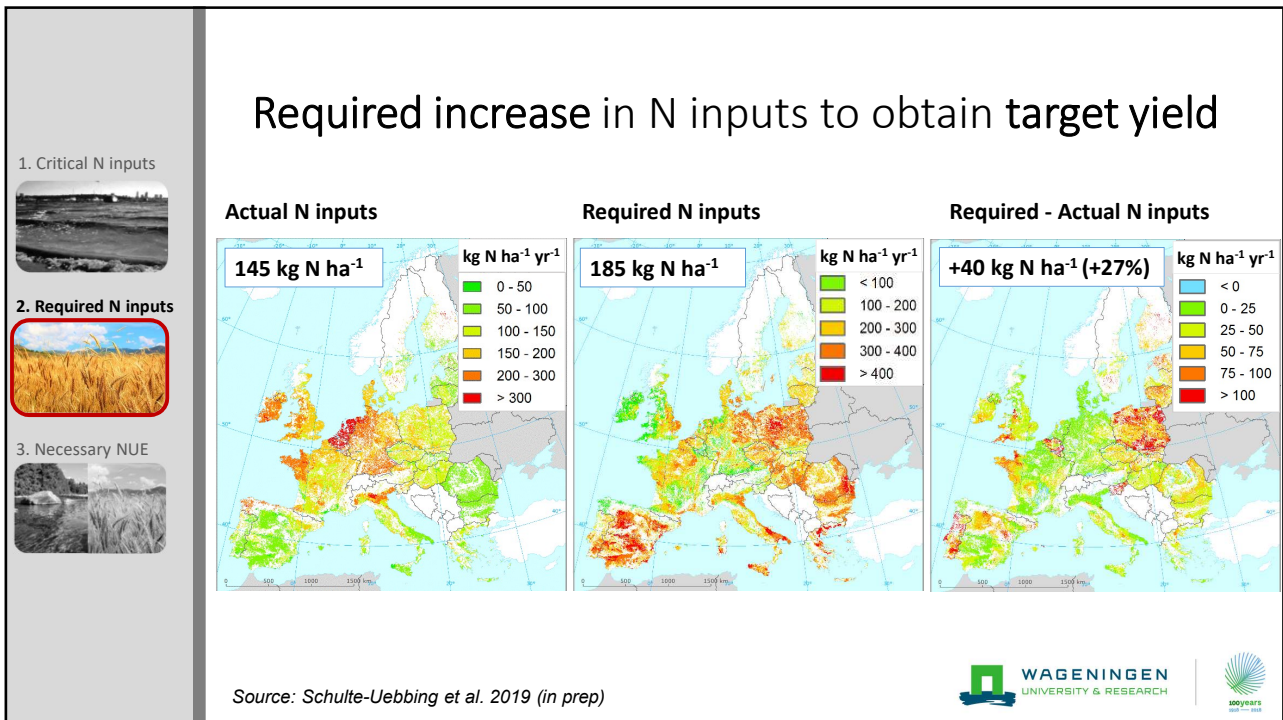
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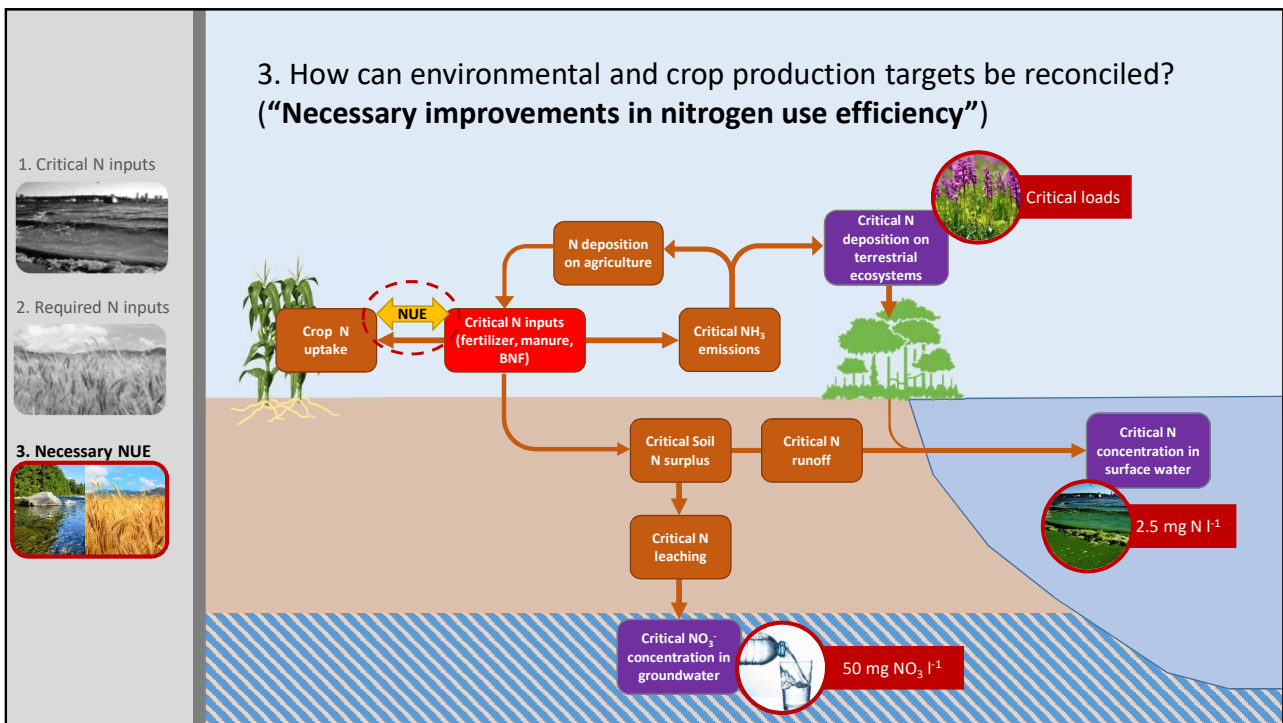
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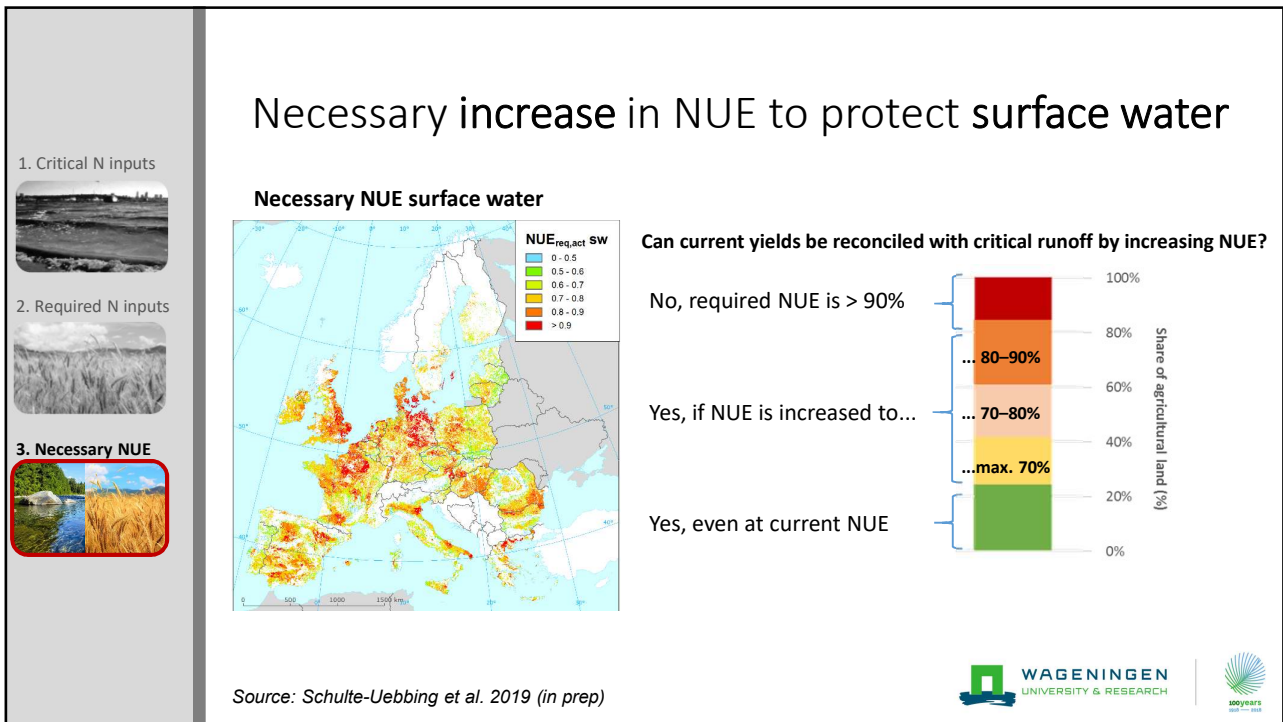
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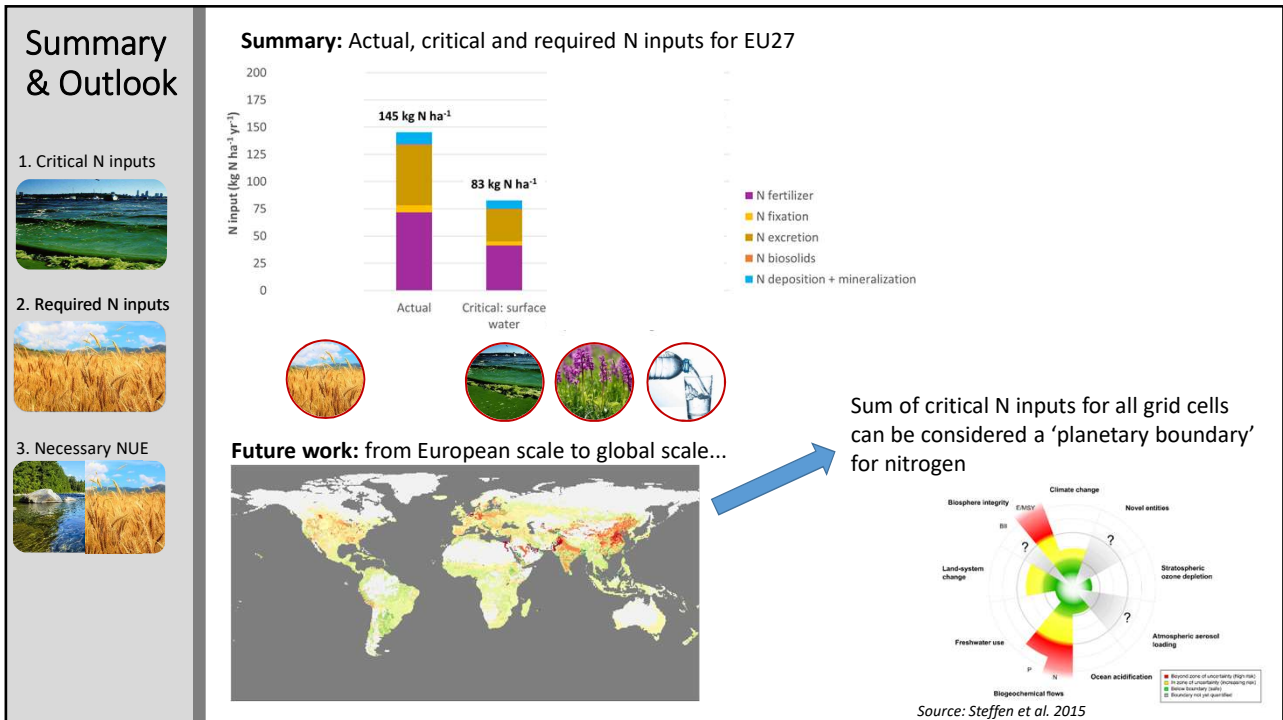
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The Dutch “stikstofcrisis” (“nitrogen crisis”)

Last 40 days: nitrogen front page news 16 times!

A ‘social’ or ‘juridical’ boundary rather than a natural one?



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Thank you

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