

# Farm-to-fork: scientist's view of the challenges and needs

Fien Amery

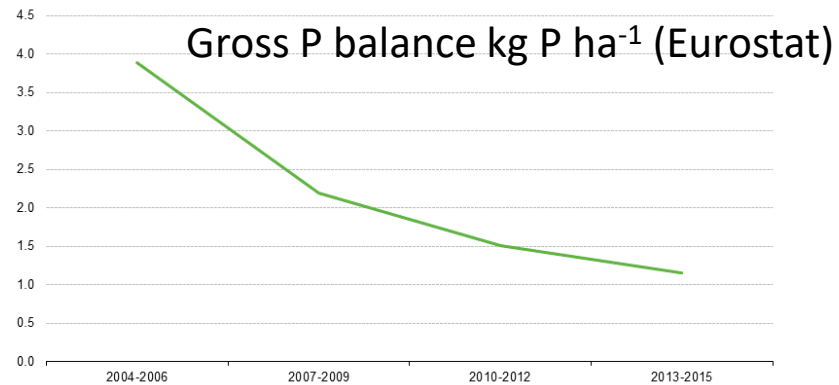
ESPP webinar on nutrients in EU Green Deal policies and  
Farm-to-Fork  
November 27, 2020

ILVO

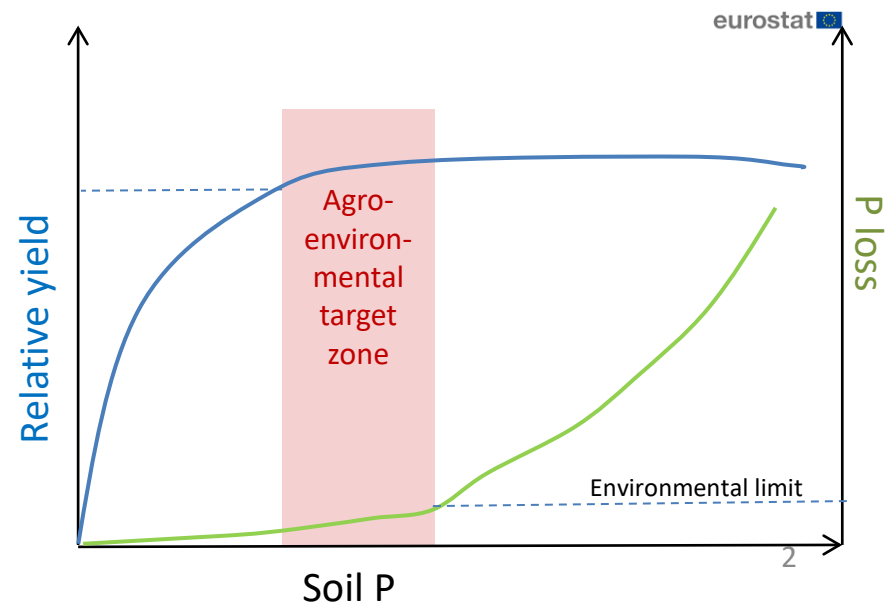
# Farm-to-fork: reduce fertiliser use by 20% + Nutrient management action plans

- History: large + P balances
- Result: high soil P
- P balance: decreasing but still positive
- Positive soil P balance is not necessary if soil P > target

Gross phosphorus balance on agricultural land, 3-years averages, kg P per ha, EU-28, 2004-2015



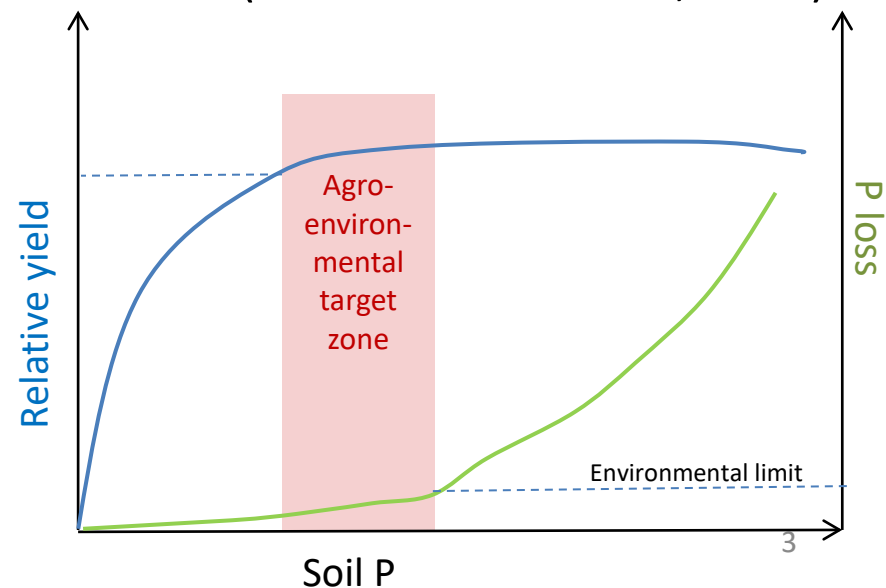
Note: Eurostat estimate.  
Source: Eurostat (online data code: ae1\_pr\_gnb)



# Farm-to-fork: reduce fertiliser use by 20% + Nutrient management action plans

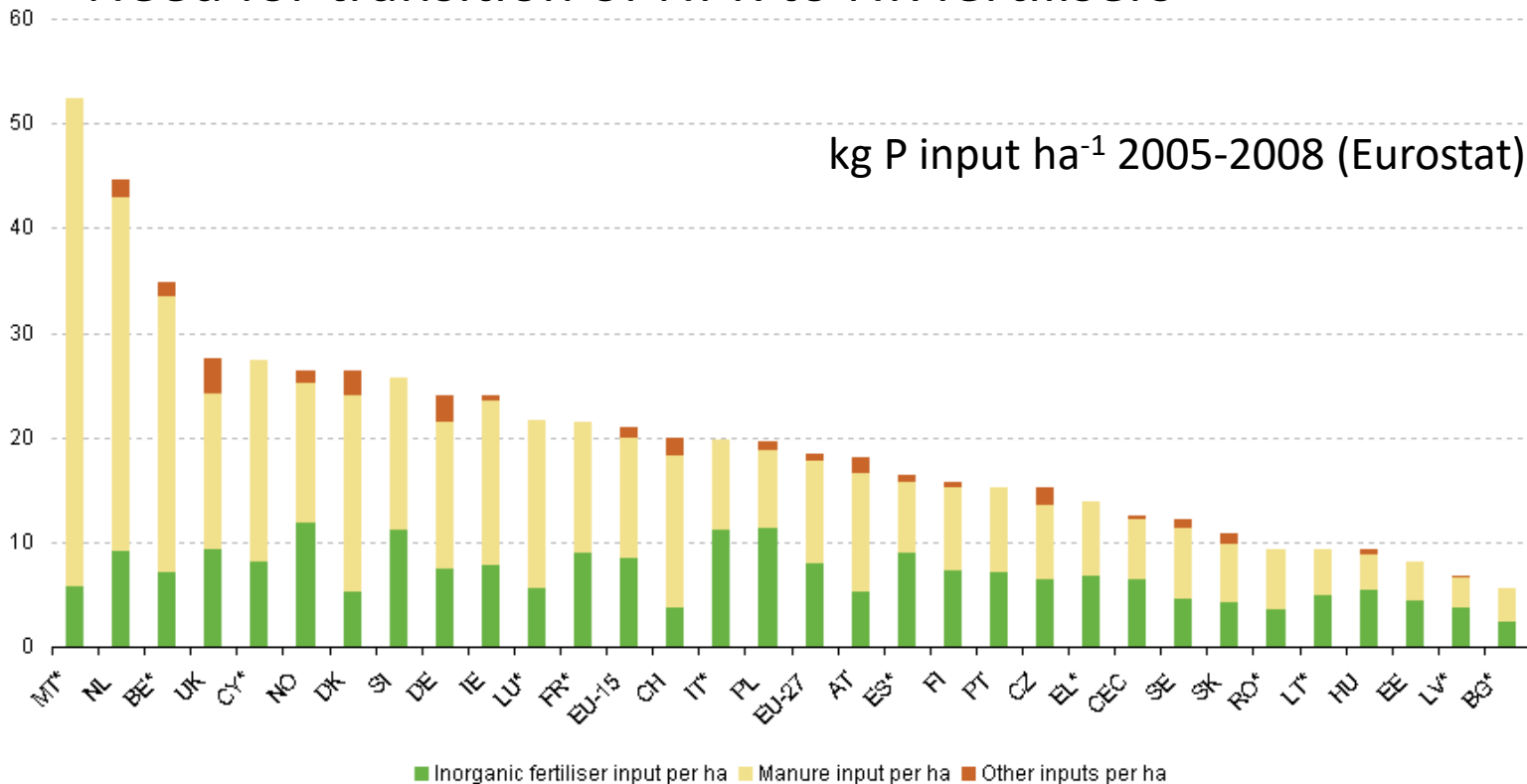
Nutrient management and stewardship is necessary:

- Insight in P balances: build-up or mining?
- Measure soil P!
- Focus on high soil P soils:
  - More strict legislation: still member states without P standards, or standards not depending on measured soil P (D'Haene & Hofman, 2019)
  - Specific mitigation measures



# Farm-to-fork: reduce fertiliser use by 20% + Nutrient management action plans

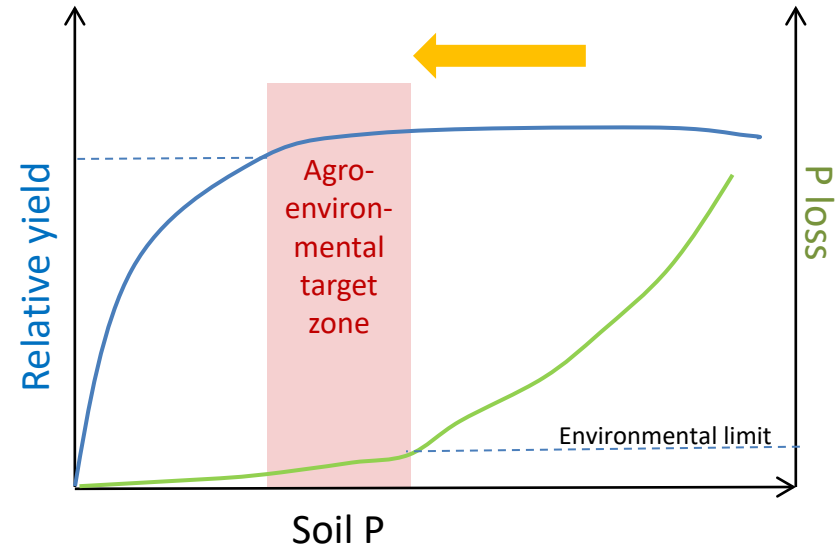
- Reduction in P fertiliser use is possible
- In high P soils: 100% reduction should be aimed for
- Need for transition of NPK to NK fertilisers



\*Eurostat estimations

# Farm-to-fork: reduction of nutrient losses by 50% in 2030

- P losses  $\sim$  soil P
- **Target zone** Flanders (Belgium): 120-180 mg P-AL kg<sup>-1</sup>
- Time necessary for average arable field (P-AL 300 mg P-AL kg<sup>-1</sup>) to **decrease** to upper limit target zone (acceptable P losses):
  - Intensive P mining (no P input): 13 – 22 years
  - Limited P mining: 35 – more years



Amery et al. (Geoderma, in publication)

# Farm-to-fork: reduction of nutrient losses by 50% in 2030

- Reduction in P losses will take much time (for soil P mining)
- Soil P mining is often  $\approx$  reduction in P input by manure
  - Consequences for livestock future?
  - Reduction of C input in soil
  - BUT: “... while ensuring no deterioration in soil fertility”
  - Focus on C sources with high C/P ratio
- Specific measures on mobilisation, delivery and impacts of soil P

# Questions?

Flanders Research Institute for  
Agriculture, Fisheries and Food  
Burg. Van Gansberghelaan 109  
9820 Merelbeke – Belgium  
T + 32 (0)9 272 27 00

[plant@ilvo.vlaanderen.be](mailto:plant@ilvo.vlaanderen.be)  
[www.ilvo.vlaanderen.be](http://www.ilvo.vlaanderen.be)