



FAIRWAY

EU DECISION MAKERS: MEASURES TO PROTECT DRINKING WATER

N surplus could be an effective indicator to link N pressure to N concentration in groundwater. However, there is a need for a common method across EU member states to collect data, calculate N surplus and define relevant frame conditions.

CONTACT

WEBSITE: <https://fairway-is.eu>
EMAIL: fairway@wur.nl

FURTHER DETAILS

[Klages, S. et al. 2018. Review report of Agri-Drinking Water quality Indicators and IT/sensor techniques, on farm level, study site and drinking water source. FAIRWAY Project Deliverable 3.1, 180 pp](#)

[Klages, S et al. \(2020\) Nitrogen Surplus—A Unified Indicator for Water Pollution in Europe? Water, 12, 1197](#)

ACKNOWLEDGEMENT



FAIRWAY received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727984

KEY MESSAGE

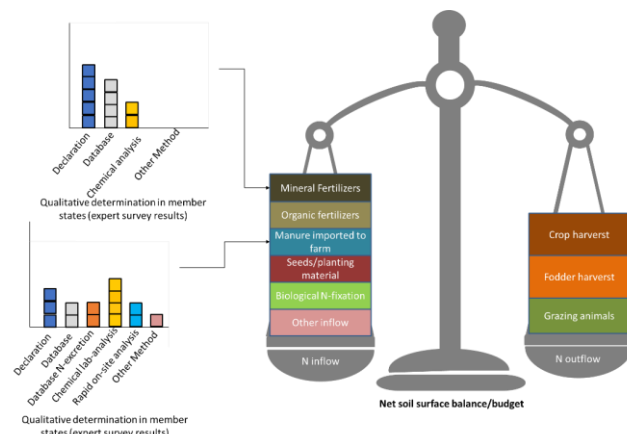
Nitrogen surplus at the farm or regional level is a useful agri-environmental indicator. However, because Member States apply different calculation methods, comparisons at the European level are ambiguous. As calculation data, particularly on farm level, may not sufficiently represent local conditions and activities, the indicator may not fulfil legal certainty.

EXPLANATION

Many agri-environmental indicators, as developed by OECD and Eurostat, are used for monitoring and evaluating the positive and negative impacts of agricultural activities on the environment and used for comparison between countries on a national scale. One of these, N surplus, is calculated as the difference between nitrogen inputs and outputs. However, the calculation methods and input data vary widely between Member States. Consequently, a cross country comparison of N budgets calculated on regional or national level needs to be interpreted carefully. On farm level, standard data may not cover local conditions, while there are still methodological problems to overcome in on site sampling and chemical analysis.

EVIDENCE

Questionnaires on the use of N indicators at farm level were completed by FAIRWAY partners. In almost all [FAIRWAY case studies](#), N surplus is used as an indicator by water authorities, albeit using different calculation methods. A positive correlation was found between N surplus of arable farms and N concentration in groundwater in cases analysed further. Therefore, N surplus on farm level may be an indicator for the N concentration in corresponding groundwater bodies. However, input data need to be carefully checked for their reliability and certainty. Due to differences in calculation methods, the outcomes are not comparable between Member States.



Net nitrogen soil surface budget with sources of information on chemical composition for selected elements (Klages et al., 2020).