Indicator Factsheet: Fertilisation intensity

Indicator: Nutrient input **Sub-indicator: Fertilisation intensity**	
Description	The spatial distribution and trends in fertilisation intensity are indicators of nutrient loading in ecosystems of open landscapes. Fertilisation intensity is the main driver on nutrient load in agricultural landscapes and associated ecosystems, thereby affecting habitat quality.
Data basis	Agricultural land use* and livestock production from the Farm Structure Survey (FSS), Land use of the Digital Landscape Model (Basis-DLM), as well as official data on mineral fertiliser quantities, biogas production and farm manure transport. Information on fertilisation intensities was derived from the aforementioned data sets, within the framework of the 'Nutrient Impact Monitoring of the Fertiliser Ordinance'. *Recently IACS data is not available on national level, therefore FSS is used instead.
Calculation	Fertilisation intensity in the form of nitrogen input, calculated as the sum of mineral fertilisation, organic fertilisers, and nitrogen fixation by the crop stand; see Zinnbauer et al. 2023. Fertilisation intensity can be calculated both as total intensity and broken down into mineral and organic fertilisation (including digestate).
Spatial reporting level	**Coverage**: National; **Resolution**: Municipal level; **Reference area**: Utilised agricultural area
Reporting period/ interval	Three-year average in cooperation with the 'Nutrient Impact Monitoring of the Fertiliser Ordinance'.
Interpretation	High fertilisation intensities, particularly over extended periods, have the potential to result in the accumulation of nutrients, thereby posing a threat to habitat and species diversity. The practice of reduced fertilisation, or the implementation of site-specific fertilisation, has been demonstrated to contribute to the preservation and promotion of biodiversity. When considering the system as a whole, further nutrient inputs from atmospheric deposition, autotrophic/symbiotic nitrogen fixation, and site history must be taken into account.
Limitations	It is imperative to recognise the inherent uncertainties associated with the data basis for mineral fertiliser use, particularly with regard to the regional distribution of application rates, for which no reliable data is currently available. Significant uncertainties can arise in areas exhibiting high crop and management diversity, as well as at sites affected by groundwater and slope runoff, etc. Utilising analyses from the Test Farm Network for Agriculture, the spatial distribution of mineral fertiliser use was found to be partially validated, yielding favourable outcomes. The calculation of the indicator and its trends is currently based on agricultural statistics, as higher-resolution data, such as IACS data and other data sources within the framework of 'Nutrient Impact Monitoring of the Fertiliser Ordinance', are not yet available on a national scale for recent years.
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