



METHODOLOGICAL EXPLANATION

PHOSPHORUS BALANCE

This methodological explanation relates to the data releases:

- Nitrogen and Phosphorus Budget, Slovenia, annually (First Release)

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1 PURPOSE

Constant balance surplus of phosphorus increases the phosphorus in soil and is a potential risk for water contamination. This release supplies for the professional and general public in Slovenia data on phosphorus inputs on utilised agricultural area, data on phosphorus outputs and data on gross balance phosphorus surplus/deficit. From data on inputs, outputs and gross balance surplus/deficit indicators on hectare of utilised agricultural area are calculated.

2 LEGAL BASIS

- [Annual Programme of Statistical Surveys \(LPSR\)](#) (only in Slovene)
- [National Statistics Act](#) (OJ RS, No. 45/95 and 9/01)
- Communication from the Commission to the Council and the European Parliament - Development of agri-environmental indicators for monitoring the integration of environmental concerns into the common agricultural policy (CELEX: 52006DC0508). Data are internationally comparable within EU.

3 UNIT DESCRIBED BY THE PUBLISHED DATA

The units described by published data are phosphorus input in utilised agricultural area, phosphorus output from utilised agricultural area, as the gross balance surplus or deficit of phosphorus.

4 SELECTION OF OBSERVATION UNIT

The observation unit is utilised agricultural area on agricultural holding above a certain threshold (more in Methodological explanation Farm structure survey, see section 10. OTHER METHODOLOGICAL MATERIALS). The lists of data which influence phosphorus input and phosphorus output tend to include all factors of natural processes and agricultural practice.

5 SOURCES AND METHODS OF DATA COLLECTION

Data are collected in the frame of the survey Agri-Environmental Indicators (KME-KOK).

Agricultural Institute of Slovenia provides all the calculations.

Statistical data as well as other data sources are used in calculations of Agricultural Institute of Slovenia:

Statistical Office of the Republic of Slovenia

Statistical data in SiStat Database (Environment and natural resources):

- Fertilizers
- Number of Livestock
- Livestock
- Crops and area

More information about these published data is available in other methodological explanations listed in section 10. Other methodological materials.

Agricultural Institute of Slovenia

Expert assessment: phosphorus in manure

phosphorus in sewage sludge

phosphorus in seeds and planting material

phosphorus in crops harvested

phosphorus in net production of temporary and permanent grassland

Slovenian Environment Agency

Data on sewage sludge disposed on agricultural areas

6 DEFINITIONS

Phosphorus inputs comprise phosphorus in all forms entered in soil with seeds and planting materials, fertilisers and crop residues expressed in tons.

Phosphorus outputs comprise phosphorus in all forms extracted from the soil in harvested crops, in harvested or grazed fodder and in crop residues removed from the field expressed in tons.

Gross balance phosphorus surplus/deficit is phosphorus inputs less phosphorus outputs. The balance surplus/deficit of phosphorus in soil presents a negative influence of agriculture on the environment and is the basis for an indirect assessment of water pollution with phosphorus (eutrophication). Constant balance surplus of phosphorus increases the phosphorus in soil and is a potential risk for water contamination. The actual risk must be assessed taking into account numerous factors that are not included in the phosphorus balance (phosphorus stock in the soil, soil characteristics, weather data, agricultural practices, etc.). On the other hand, constant phosphorus deficit presents a risk for the soil deterioration, which can lead to problems such as soil erosion.

7 EXPLANATIONS

7.1 OTHER EXPLANATIONS

Some totals do not add up due to rounding.

The gross balance phosphorus surplus/deficit is based on the difference between the input and the output of phosphorus, i.e. between the quantity of phosphorus input in the soil by agriculture and the quantity of phosphorus in crops removed from the soil. It is expressed in kilogram of phosphorus per hectare of utilised agricultural area (kg/ha).

The input of phosphorus into the soil is comprised of the following sources:

- inorganic fertilisers,
- livestock manure,
- organic fertilisers excluding livestock manure,
- seeds and planting material,
- crop residues on the field.

The output of phosphorus occurs through:

- harvested crops,
- harvested and grazed fodder,
- crop residues removed from the field or burned on the field.

The surplus of phosphorus in the soil indicates a negative impact on the environment from agriculture and a possible pollution of water by phosphorus (eutrophication). The actual risk must be assessed taking into account numerous factors that are not included in the phosphorus balance (phosphorus stock in the soil, soil characteristics, weather data, agricultural practices, etc.). On the other hand, constant phosphorus deficit presents a risk for the soil deterioration, which can lead to problems such as soil erosion.

8 PUBLISHING

Data are published:

Annually:

- SiStat Database: Environment and natural resources – [Agri-Environmental indicators](#). Published data are absolute on the NUTS0 level.
- First release (Agriculture, Forestry and Fishery; Production Methods in Agriculture): »Nitrogen and Phosphorus Budget, Slovenia, annually«.
- Eurostat

9 REVISION OF THE DATA

9.1 PUBLISHING OF PRELIMINARY AND FINAL DATA

The data do not have the status of provisional/final data. Data are occasionally revised due to modified methodology harmonising data reported to Eurostat with data reported according to the United Nations Framework Convention on Climate Change and United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution Reporting. There is always recalculated the whole series, so all points in time are comparable.

9.2 BREAKS IN TIME SERIES

There were no breaks In time series, so all points in time are comparable.

Methodological explanation on revision of statistical data is available on <http://www.stat.si/dokument/5299/RevisionOfStatisticalDataMEgeneral.pdf>.

10 OTHER METHODOLOGICAL MATERIALS

- Methodological explanations:

- Consumption of mineral fertilisers,
- Consumption of mineral fertilisers by crops,

Theme: Agriculture, Forestry and Fishery, Sub-theme: Production Methods in Agriculture

- Livestock number,

Theme: Agriculture, Forestry and Fishery, Sub-theme: Livestock, Milk and Milk Products

- Farm Structure Survey,

Theme: Agriculture, Forestry and Fishery, Subtheme: Farms and Agricultural Census

- Arable land with main crops,
- Crop production,

Theme: Agriculture, Forestry and Fishery, Subtheme: Crop Production

<http://www.stat.si/StatWeb/en/Methods/QuestionnairesMethodologicalExplanationsQualityReports>

- Eurostat, Methodology and Handbook, Nutrient budgets:

[https://circabc.europa.eu/sd/a/4f405a13-9131-40c7-acea-b76f531da8b1/Nutrient%20Budgets%20Handbook%20\(CPSA_AE_109\)%20corrected3.pdf](https://circabc.europa.eu/sd/a/4f405a13-9131-40c7-acea-b76f531da8b1/Nutrient%20Budgets%20Handbook%20(CPSA_AE_109)%20corrected3.pdf)

- Reference Metadata In Euro SDMX Metadata Structure (ESMS): Gross Nutrient Balance (aei_pr_gnb)

http://ec.europa.eu/eurostat/cache/metadata/en/aei_pr_gnb_esms.htm