



Nutrient balance indicator in agri-environmental policy in Estonia

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Content of the presentation

- Overview of Estonian pressure from agriculture (data from last ND raport 2016-2019)
- Overview of Estonian Water Act – requirements of nutrient use in agriculture
- Plans with nutrient balance calculation in Estonia

Pressure from Agriculture



- Estonia's utilized agricultural area amounts to 1 Mha, representing 23% of the total land area and increased of 10% since 2007. The major outputs of the agricultural industry excluding services and secondary activities include in a decreasing order milk (27.3%), and cereals (17.3%).
- Eurostat

Pressure from Agriculture, utilized agricultural area (UAA)

Estonia	2005	2007	2010	2013	2016
Utilised agricultural area UAA (1000 ha)	NA	915	949	966	1004
arable land (1000 ha)	NA	594	640	628	687
permanent grass (1000 ha)	NA	306	296	325	304
permanent crops (1000 ha)	NA	3	3	3	3
kitchen gardens (1000 ha)	NA	11	10	10	9

Note:

Eurostat (FSS)

Pressure from Agriculture, livestock statistics

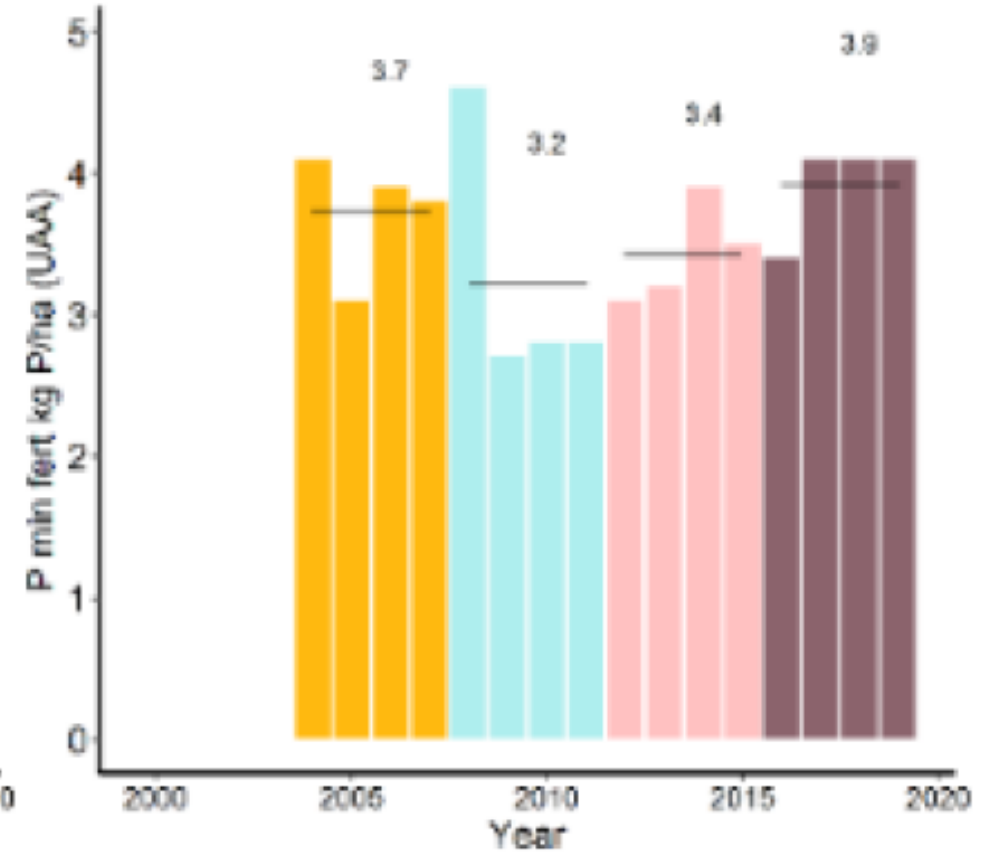
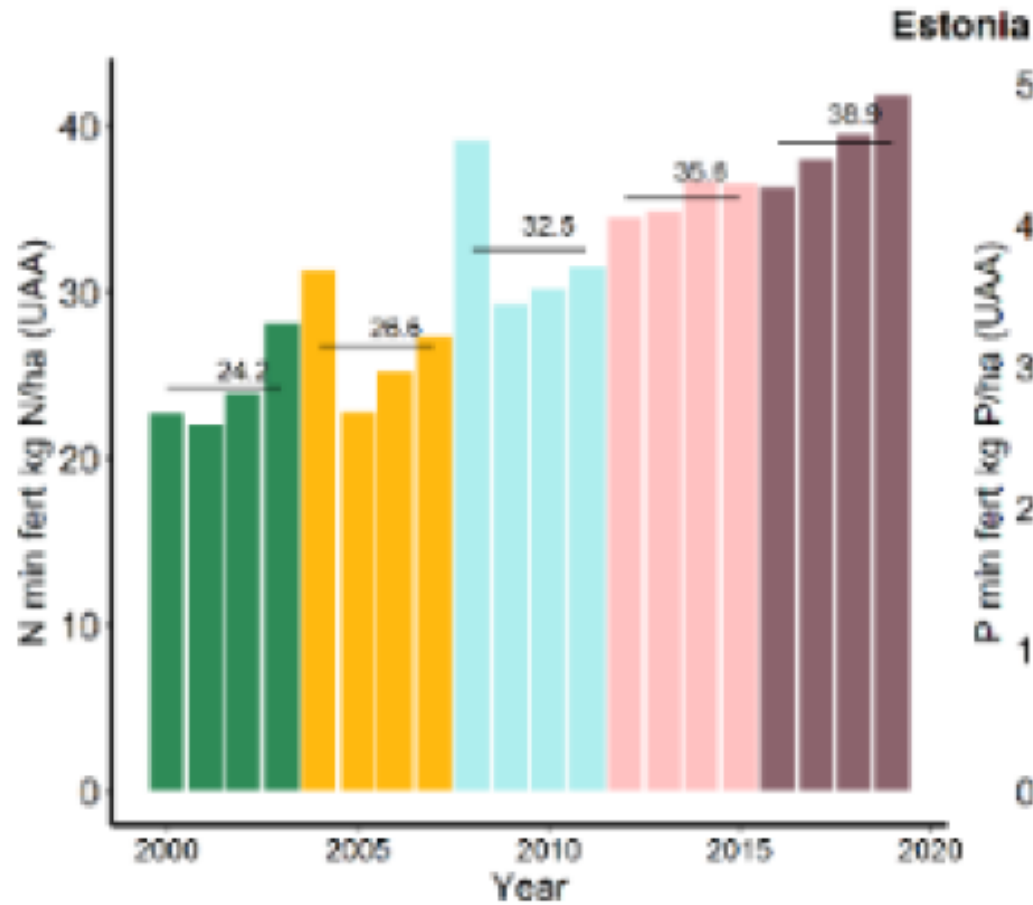


Estonia	2005	2007	2010	2013	2016
Livestock index	0.38	0.35	0.33	0.32	0.28
dairy cows (10^6 heads)	0.11	0.10	0.10	0.10	0.09
live bovines (10^6 heads)	0.25	0.24	0.24	0.26	0.25
live pigs (10^6 heads)	0.35	0.38	0.37	0.36	0.27
live poultry (10^6 heads)	NA	NA	1.94	2.17	1.90

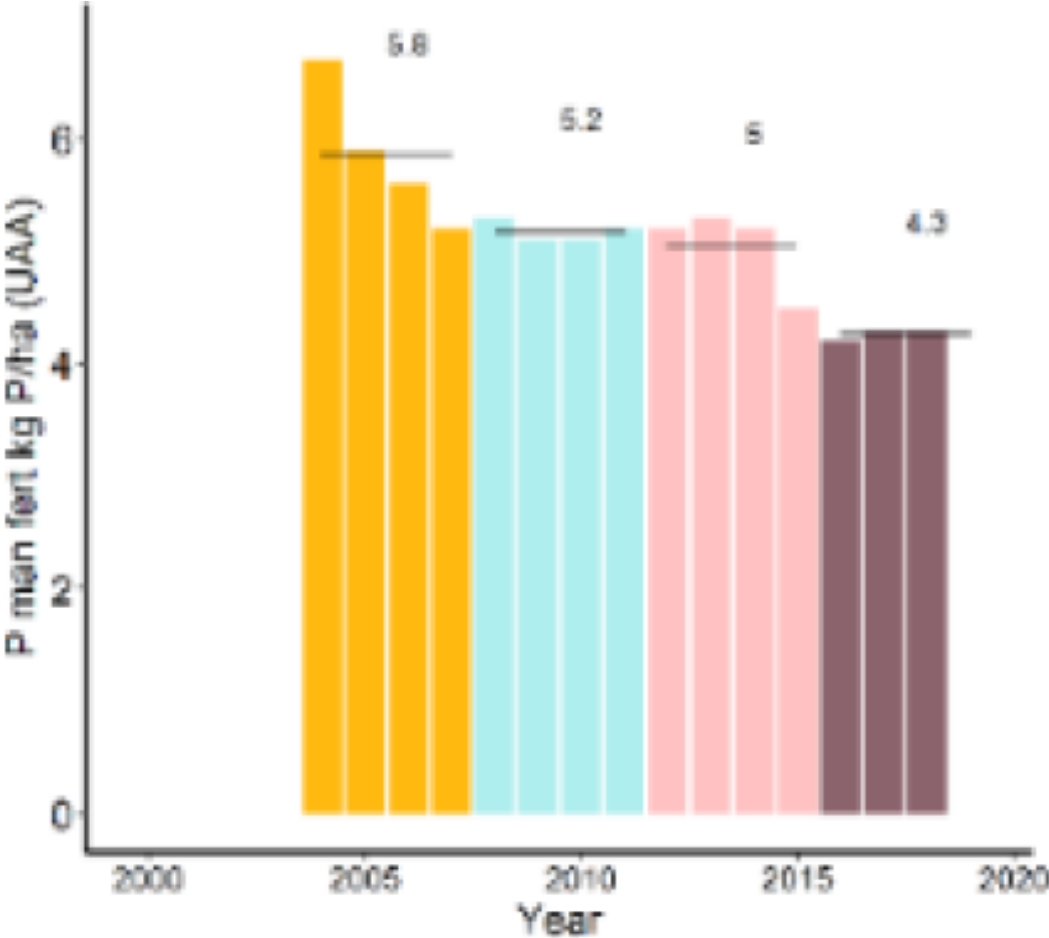
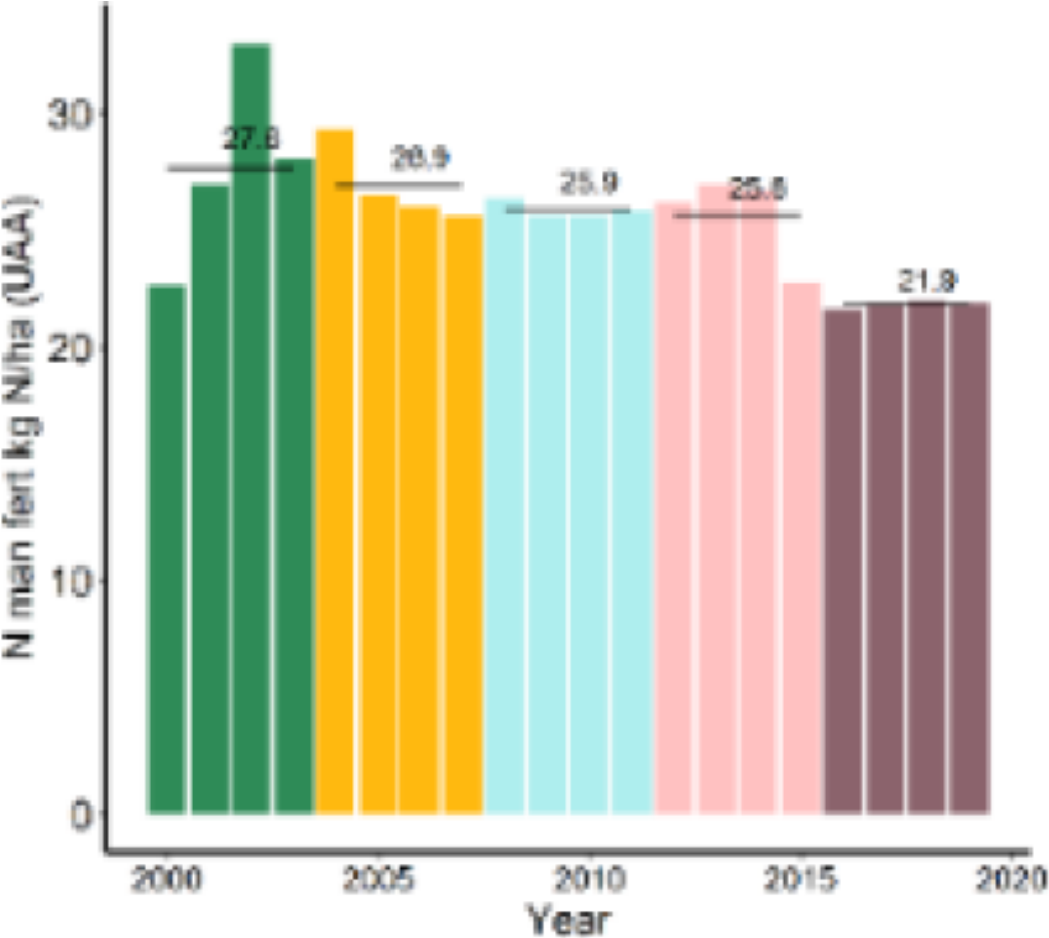
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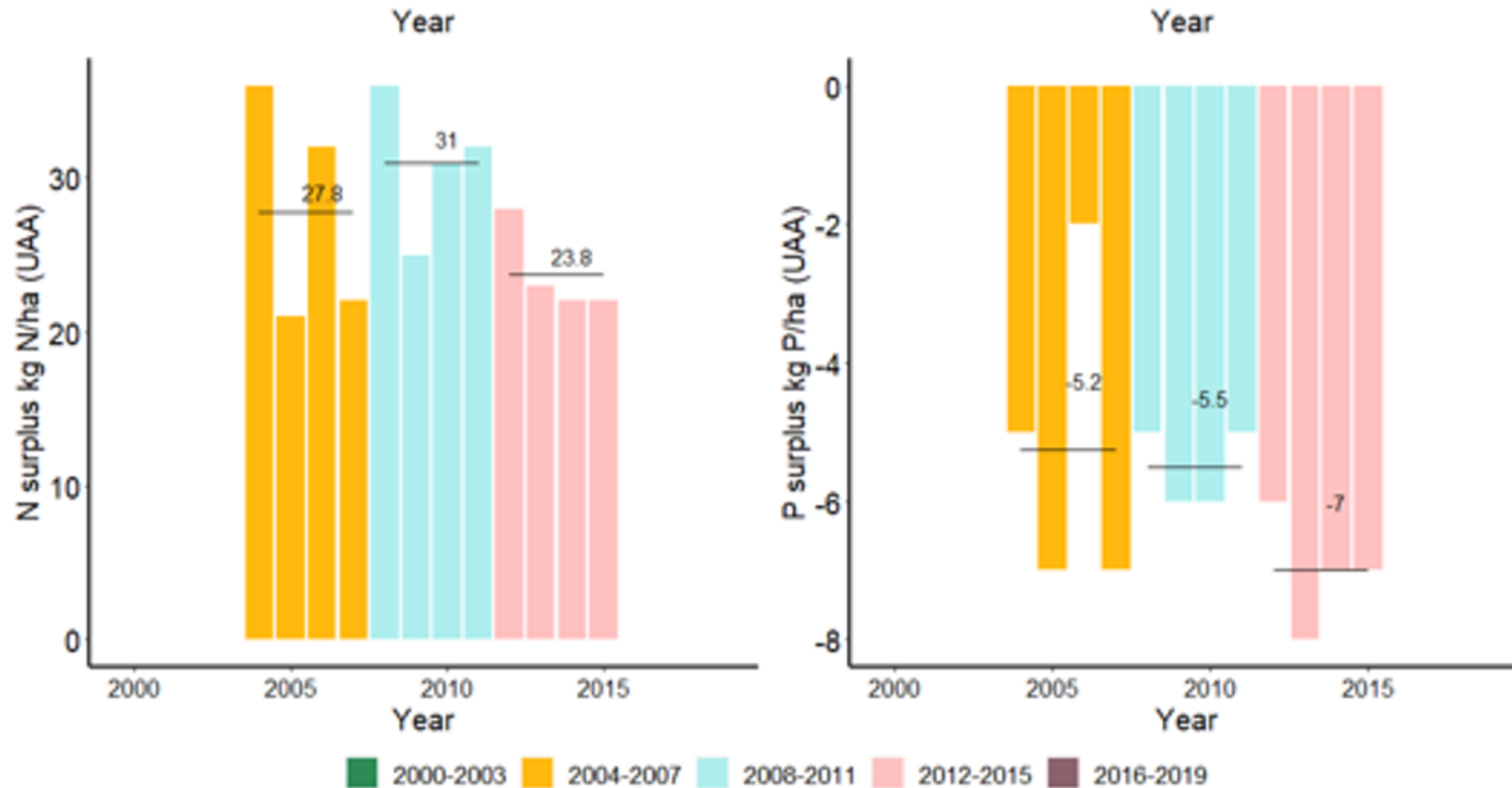
Pressure from Agriculture, N/P mineral fertilizers



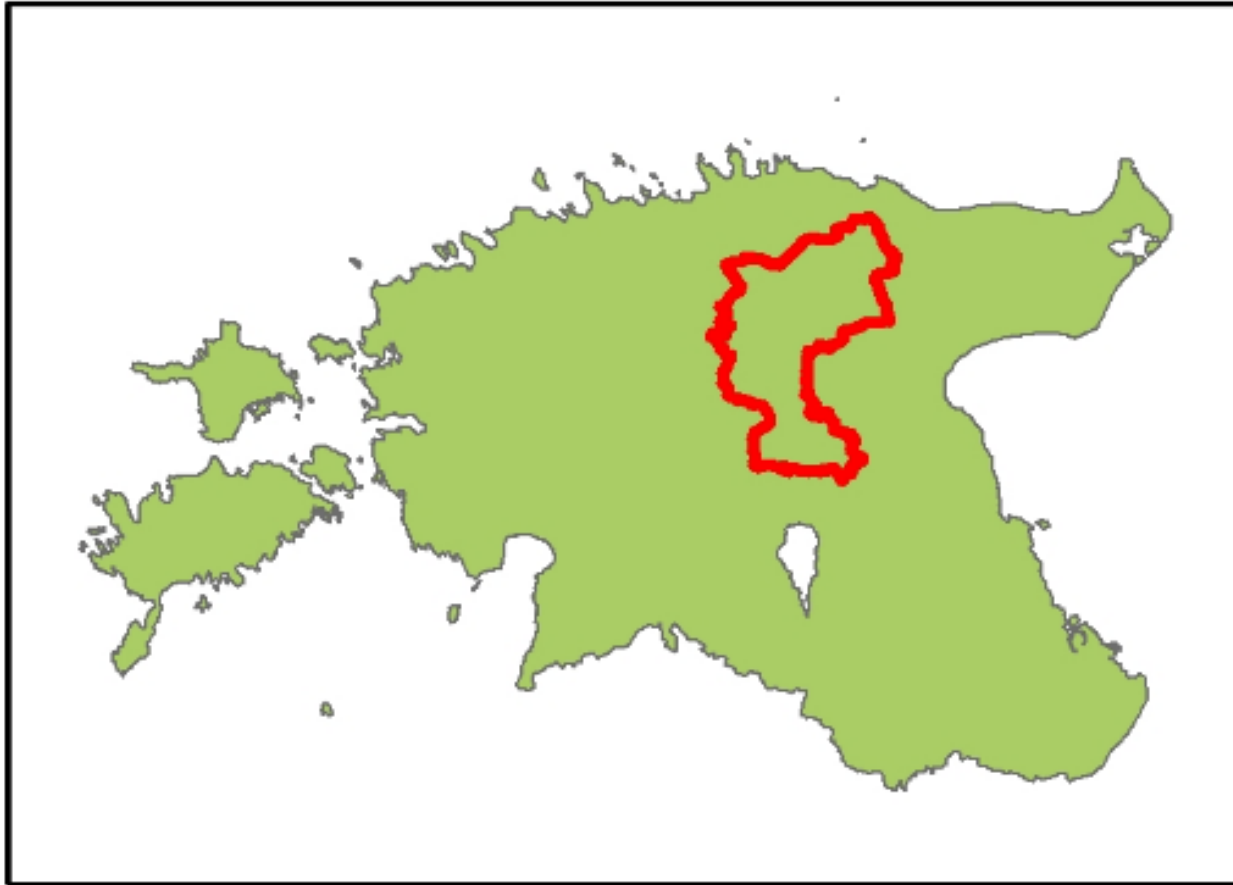
Pressure from Agriculture, N/P manure



Pressure from Agriculture, the gross nitrogen and phosphorus surpluses (EUROSTAT)



Pandivere and Adavere-Põltsamaa NVZ



- In 2003, the nitrate-sensitive area of Pandivere and Adavere-Põltsamaa (3250 km²) was established in Estonia. The boundaries of the nitrate-sensitive area have not been changed since then.

Pressure from Agriculture – water quality



- The anthropogenic load of nutrients from agriculture to Estonian water bodies is very high and accounts for 84% of the nitrogen and 79% of the phosphorus load.
- Eutrophication of lakes and coastal seas continues to be a problem in Estonia.
- The entire Baltic Sea is recognized as a eutrophic water body.
- One of the four groundwater bodies remaining on the NVZ is in a bad condition precisely because of nitrogen compounds.

Environmental Requirements for Agricultural Activities – The Water Act



Subchapter 7 Environmental Requirements for Agricultural Activities

§ 155. Field record

- (1) A person engaged in agriculture shall keep a field record in which information regarding agricultural activities shall be entered.
- (2) For the purposes of this Act, agricultural activities mean the production, rearing or growing of agricultural products including harvesting, milking, breeding animals and keeping animals for farming purposes, and maintaining the land in good agricultural and environmental condition.
- (3) The data entered in a field record shall be stored for ten years after the entry of the data in the field record.
- (4) Upon transfer of an agricultural parcel or a part thereof to a new possessor, the part of a field record containing data on the agricultural parcel or part thereof shall be delivered to the new possessor who shall continue maintaining the respective part of the field record.
- (5) The list of data to be entered in a field record and the procedure for keeping a field record shall be established by a regulation of the minister in charge of the policy sector.

§ 156. Good agricultural practice

- (1) For the purposes of this Act, good agricultural practice means commonly accepted production techniques and methods which correspond to the natural and climatic conditions of Estonia and take into account general environmental conditions, and the adherence to which enables to reduce the environmental risks caused by agricultural activities to water.
- (2) The measures of good environmental practice are provided for in clause 3 of § 119, §§ 158–161, subsections 1–7 of § 164, subsection 1 of § 167 of this Act. in the legislation established pursuant to subsection 2 of § 167 of this Act. and in subsection 5 of § 168 of this Act.

Maximum levels of nitrogen and phosphorus provided by fertilisers



In the Water Act the maximum permitted amounts of nitrogen are established that are allowed to be given to agricultural crops annually, taking into account the fertilizer requirement for the growth of the crop, the effect of previous crops and the aftereffect of manure

Maximum levels of nitrogen and phosphorus provided by fertilisers



- According to the nitrate directive, the amount of **nitrogen applied with manure is limited to 170 kg/ha** in the nitrate-sensitive area. This requirement also applies, with one exception, outside the nitrate-sensitive area.
- **The exception**, it is allowed to give more than 170 kg of nitrogen per hectare to maize, herbaceous grasses, and grasslands with up to 25 percent of leguminous plants. The manure shall be spread before 15 August and in several parts. This exception shall not apply to peat soil.

Maximum levels of nitrogen and phosphorus provided by fertilisers



- In order for the farmer to be able to use the exception provided for in the Water Act, he must calculate field-based nutrient balance for both nitrogen and phosphorus entering and leaving the soil.
- At the moment the requirements and procedure for calculating the field based nutrient balance for nitrogen and phosphorus is being established by the minister of Rural Affairs.

Maximum levels of nitrogen and phosphorus provided by fertilisers



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Maximum levels of nitrogen and phosphorus provided by fertilisers



- It is permitted to spread **up to 25 kg** of **phosphorus with manure**, including the phosphorus in manure left on the land by livestock upon grazing, per hectare of area under cultivation per annum. It is permitted to increase or decrease the amount of phosphorus in manure spread on the area under cultivation with the consideration that the amount of phosphorus spread as an average over the period of five years shall not exceed 25 kg per hectare.

Maximum levels of nitrogen and phosphorus provided by fertilisers



- If the phosphorus demand in the soil is high or highest and the person engaged in agriculture has organised the sampling of soil per each 5 hectares for the last 5 years and analysing the samples by an accredited laboratory analysing method to prove it.

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



- Environmentally friendly management intervention is broad-based eco scheme.
- Support for environmentally friendly management has been widely implemented in Estonia since the EU accession. At the change of different CAP periods, the support scheme has been further developed, and so is this intervention further development from the measure of the previous period.

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



- The purpose of the support is to encourage the introduction and continuation of environmentally friendly management methods use in agriculture to protect and improve the condition of soil and water, as well as to increase biodiversity and landscape diversity, and raise the environmental awareness of agricultural producers. The intervention is activity-based, the farmer undertakes a one-year commitment.

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



- The intervention consists of a package of requirements for the main activity and additionally selectable additional activities. All applicants must complete a collection of main activity requirements. The main activity applicant can choose in addition to the main activity unlimited additional activities.

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



Main activity requirements

1. Crop rotation
2. Use of certified seed
3. Soil sampling
4. Recording/keeping an electronic field book
5. Preparation of the Nitrogen Balance and sharing of the necessary data into the e-field book.
6. Restriction on the use of glyphosate
7. Mandatory training

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



- In the case of growing garden crops (vegetables, strawberries, herbs and spices, fruit, and berry crops) the following main activities apply:
 - crop rotation, soil samples, electronic field book, glyphosate restriction, mandatory training
 - In addition, the following applies to garden crops:
 - requirements on service areas and row spacing.
 - pheromone traps and elements of diversity

Estonian CAP strategic plan 2023-2027 – nutrient balance calculation



Selectable additional activities:

- Additional support for garden crops for the use of organic mulch in rows or between rows
- Additional support to vegetable growers for growing green manure.
- Additional support for multi-species small fields - at least 8 different crops
- Additional support for the cultivation of intermediate crops
- Additional support for liming acidic soils.
- Additional support for non-use of glyphosate

Nutrient balance calculation in Estonia



- The obligation to calculate the field based nutrient balance adapts to the following farmers:
 - Farmers who use the Water Act exception – more than 170 kg of manure nitrogen per ha (calculation for N and P)
 - Farmers who join the environmentally friendly management intervention scheme (calculation for N)
- An electronic field book and an electronic balance calculator are being prepared for easier calculation of the nutrient balance.
- Both tools are expected to be completed by early 2024.

Final remarks



The results must be interpreted wisely!

- A person who understands the results of the balance results can bring about a change in the quality of the environment by changing his behavior accordingly.
- Calculating for the sake of the requirement does not get us closer to the goal!

More training, training, training!



LUNCH until 14:15 (UTC +3)



Thank You!

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