



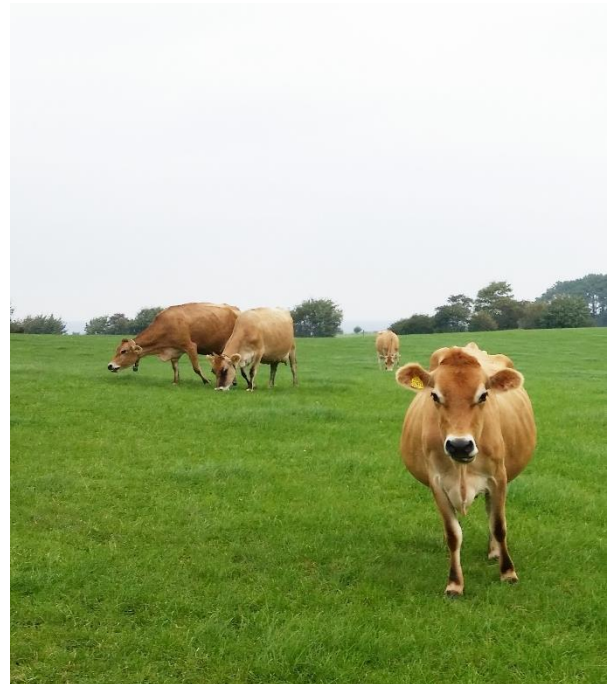
## SuMaNu Policy Recommendation 1

*The SuMaNu project platform has produced a set of policy recommendations to support transition towards more sustainable agriculture and efficient nutrient recycling. These policy recommendations reference and complete each other and the reader is encouraged to read them all.*

### Development of coherent P fertilisation policies in the Baltic Sea Region

Farmers in the Baltic Sea region (BSR) generally lack information, tools, and incentives to plan sustainable use of phosphorus (P) for crop fertilisation, especially that contained in manure. The following measures are recommended to improve the situation:

- Minimum regulative measure for P fertilisation from manure should be  $25 \text{ kg ha}^{-1} \text{ yr}^{-1}$  as set by HELCOM.
- Optimally, P fertilisation limits should be based on crop requirements to avoid overfertilisation and be applied for all P fertilisers.
- A joint P-index for mitigating P losses, including best management practices in areas vulnerable for P losses should be developed.



## Background

Currently, most countries in the BSR are lacking regulation of P fertilisation. It is generally assumed that the cost of mineral P fertilisers will economically deter from overuse, although without reliable P fertilisation guidelines this assumption is questionable. Manure use, on the other hand, tends to lead to overfertilisation with P. Manure is most often spread according to its N content, partly since N is the nutrient crops need the most of and partly because it minimises the need to transport manure to distant fields. However, since manure has a lower N:P ratio than what most crops require, spreading based on N results in applying more P than the crops can take up. This leads to a P surplus and subsequent increased risk for P losses to waterways.

There are practices and technologies that can help improve the N:P ratio in manure or separate out a P rich fraction that can be used where P is needed (see policy recommendation 4 for details), but there are essentially no incentives for implementing these practices and they are generally not done. Unfortunately, recommendations and voluntary measures alone will not solve the problems with significant regional surplus of P in areas with livestock production. Regulations are needed to steer towards more sustainable P use.

### Regulation of P fertilisation

Adopting a flat rate maximum P application limit is the most basic regulatory measure to help the situation, even though it can still lead to overfertilisation. An advantage of the flat rate measure is that it is relatively easy to enforce through permitting, as it restricts the number of livestock allowable for a given amount of land available for spreading manure. There are other regulatory methods that could lead to greater control of P fertilisation, however these also tend to be more complex to implement and enforce. HELCOM has set an annual flat rate maximum limit of 25 kg P ha<sup>-1</sup> yr<sup>-1</sup> from all manure. However, it has not been adopted in many countries.

This flat rate should be the bare minimum regulatory measure for P fertilisation and must be adopted by all BSR countries that currently do not have stricter P regulation.

### Crop based P guidelines

Fertilising all crops with the maximum flat rate of P described above will still result in overfertilisation for most crops, and it does not provide any guidance for economical fertilisation with mineral P.

National guidelines for economically optimum P fertilisation should be developed in all BSR countries and promoted for fertilising with both mineral and manure P. Providing economically optimum guidelines will gain farmer confidence, lead to better nutrient use efficiency and result in decreased P loss. Guidelines for each crop should be given for a range of expected yields based on soil P status, soil pH, cost of mineral fertilisers and other relevant parameters. These P fertilisation guidelines should then be the basis for fertilisation planning (see Policy Recommendation 2).

## Development and use of P-indices

Despite the use of guidelines for P fertilisation and standard values for manure P (see Policy Recommendation 3), a risk for P losses remains depending on circumstances such as field slope, soil type, soil P status, geological characteristics, and cultivation systems. P-indices are tools that offer integrated approaches to estimate the risk for P loss from agricultural soils. A coherent P-index model would provide a tool for reducing P losses in the BSR by targeting mitigation measures to the locations where they are most effective. P-indices could be used for adjusting guidelines for P fertilisation based on the assessed risks for losses.

The BSR countries should join forces to share relevant data and experiences with practical implementation to develop a joint P-index model based on modules that different countries can use according to their needs.

With this in place, the use of it should be incorporated into the fertilisation planning (see Policy Recommendation 2) to reduce P loss to the environment.



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