

June 2015

Newsletter of Baltic Farmers' Forum on Environment (BFFE)

Dear Baltic farmers and other colleagues ,

This spring has been quite a challenge for farmers. Adverse weather conditions, wetness and delayed sowing in the North of the Baltic Sea, or drought and reseedling in the South of the Baltic Sea (e.g. Germany), have caused many concerns for farmers. Not only from economical point of view, but also from the environmental one.

Heavy rains in April-May in South-Western Finland did leach nitrogen out from the newly seeded fields. The start of the current season is not promising. Roots zones for the uptake of plant available nutrients in the soils are not developing like they should. How much does the lack of vigorous growth affect the nutrient leaching? What are the best conditions and best practices in the field to control nutrient discharge? These questions need better answers and thereby we are updating the nutrient leaching models by the LOHKO-projected, just started by MTK coordination: www.mtk.fi/lohko.

Resource efficiency is our goal – regarding to optimal land and nutrient use, and thus for most efficient water protection. But nature with adverse weather conditions and the history of old nutrient loads hamper reaching our targets.

The scientific contribution in the BFFE conference this February gave strong signals that it will take decades until the Baltic Sea is healed. Although the land-based loads have been decreased to the level we had 50 years ago, the Sea does not recover along with the load control. Why? Because of the “internal load”, the harmful effects from old loads. As said by scientists, nature prefers steady state. If we are successful in controlling the nutrient loads after HELCOM updated recommendations in 2013, the Sea will demand close to 100 years to recover. If not, the recovery time would be much more: www.mtk.fi/bffe.

Would circular economy speed up the healing? Not necessarily. Recirculated nutrients are not the solution, but the way we use nutrients in general. The question is how well phosphates, nitrates or ammonium-cations are taken up by the root zone, and then removed by the harvest. The roots do not sense the origin of these ions: the right, availability just in time matters and the active rooting. The role of soils is crucial and we farmers are happy to share widely in our societies the appreciation of fertile soils, during the current Internal Soil Year 2015.

Despite of the challenging start of this growing season I wish you a pleasant summer time. It's time to follow the miracle of new growth in our soils, which we treat carefully under local and varying weather conditions - to keep them productive for sustainable food production and environmental care.

Liisa Pietola, BFFE Secretariat

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Towards climate agreement in Paris 2015

For this year's UN climate conference in Paris, the preparations to combat together against global climate warming are active. Climate change is a global challenge and need global solutions.

Text Liisa Pietola, MTK



For Baltic Farmers, the global agreement and related EU climate policy are important, especially by the role of land use. For us, forests are an important part of farming. Growing forests are removing carbon from the atmosphere, thus mitigating the warming. In Europe, only around 60 % of the annual increment is harvested. Therefore, we have potential to increasingly promote carbon sequestration in the soil by our forests.

Also arable soils are removing carbon by the crops, by photosynthesis. Currently in EU climate policy, the land use sector and CO₂-gas do not belong to the policy frame, which contribute to reduction targets. The non-CO₂ gases from agriculture are only included in the effort share of agriculture. These are methane and nitrous oxide emissions, mainly from ruminants and nitrogen fertilizers.

The climate policy should not limit the use of forest resources, but secure food production. It should be noted, that agriculture, forestry and other land use (AFOLU) accounts for 24 % of total anthropogenic greenhouse gas (GHG) emissions. AFOLU is the only sector, where net emissions fell in the most recent decade. Whilst agricultural non-CO₂ GHG emissions increased, net CO₂ emissions fell, mainly due to decreasing deforestation, and increased afforestation rates (Smith et al. (2014) – IPCC

WGIII AR5).

On 25 March, the European Commission launched a public consultation on **the integration of land use, land use change and forestry** (LULUCF) into the EU's climate and energy policy for 2030. Commission is asking, which of the following option would be the best approach to integrate land use sector:

- **Option 1** — LULUCF pillar: Maintain non-CO₂ agriculture sector emissions in a potential future Effort Sharing Decision, and further develop a LULUCF sector policy approach separately;
- **Option 2** — Land use sector pillar: Merging the LULUCF and agriculture sector non-CO₂ emissions into one new and independent pillar of the EU's climate policy;
- **Option 3** — Effort Sharing: Include the LULUCF sector in a potential future Effort Sharing Decision.

We see that with the available knowledge it is impossible to choose a certain option since the real meaning and consequences of options are not clear. Based on current situation, the first option is risky for food security and the others may limit the use of forest resources. The key question is: how to bring carbon in to increase mitigation potential of agriculture. I see combination of option ele-

ments a necessity.

Option 1 keeps agriculture under sectors not included in the EU Emissions Trading System (non-EU-ETS) with non-CO₂ gases (methane and nitrous oxide), which have very limited mitigation potential. Based on **resent results** (Rikkinen, ed. 2015) the cost-efficient emissions reduction was 2-3 % from the 2005 level in agricultural sector. We at MTK see that the consequences depend heavily on accounting rules and flexibility to compensate emissions and sinks between different sectors which will be decided later. Regardless of the option chosen following principles have to be secured: EU should not intervene in national forest policy and harvesting rates in member states, agriculture and forestry should not be used to allow bigger emissions from industry and other sectors, food security has to be secured, and no artificial barriers to the use of renewable raw materials should be created. We call that rules must allow increased production and use of these materials, with no trade-offs between MS, and forested countries should not pay for the emissions of other countries through their forest sink.

The consultation is due on June 18. We hope that Baltic farmers widely express their opinions for policy which affect farmer's possibilities to use their soils for food and fiber in the future. ♦

More detailed information about the risk of agricultural nutrient load

How much nutrients are leaching from fields or how can leaching risk be minimized? These are actual questions but the exact answers are missing. We need more information to refine the estimates of nutrient load (kg/ha) from farming activities on arable soils.



Text Airi Kulmala, MTK, Photo Jami Lauttalammi, MTK

So called LOHKO project (Nutrient loading from fields: simulation and model development with consideration to field plot characteristics) collects more information about nutrient load to the waters and factors affecting it in collaboration with the farmers. At the beginning of this year started 2-year project is implemented by MTK in cooperation with Uusimaa ELY Centre, the Water Protection Association of the River Vantaa and Helsinki Region, Pyhäjärvi Institute and the Finnish Environment Institute. But the most important is the farmers' participation in the project. The project is financed by the Finnish Ministry of the Environment's program to promote the recycling of nutrients and to improve the status of the Archipelago Sea 2012 - 2015. In addition to the project partners contribute to financing.

Results of monitoring and modeling help farmers

It is important to know, as precisely as possible, the effect of arable land properties and farming methods on the risk of nutrient load. This facilitates agricultural sector to respond nutrient reduction targets. When the best measures are known farmers may choose among those that are also best suitable for farm's everyday life and costs are reasonable.

Many national and international reduction targets have been set to reduce nutrient load. The results of the LOHKO help authorities to assess more reliably the effectiveness and practicability of the agricultural water protection measures.

LOHKO has five target areas in the southern Finland. Nutrient leaching is monitored by automated high frequency water quality

and flow measurements, which are supplemented by traditional water sampling. Also soil quality analyzes will be done. Farmers are asked about their farming practices and the use of nutrients. All this information is utilized in modeling.

In LOHKO VEMALA/ICECREAM model will be defined and used to assess the effect of different combinations of agricultural practices on loading and then to the status of the waterbody.

Farmers participating in the project will have access to the detailed monitoring and modeling results in their own areas. Conclusions and summary of the results can be put to use by advisory sector. Authorities can use results e.g. in river basin management planning.

More information (in Finnish, brochure also in Swedish):

www.mtk.fi/lohko ♦

Farm nutrient management and balanced fertilization in focus

The second meeting of HELCOM Agri (Group on Sustainable Agricultural Practices) was held in Germany in late May. Nutrient management and balanced fertilization were important topics of the meeting.

Text & photo Airi Kulmala, MTK

Nutrients in manure

One of the Agri group's tasks is to enhance the utilization of nutrients in manure in crop production. The first thing is that the nutrient content of manure needs to be known as exactly as possible. It was discussed the development of national guidelines or standards for nutrient content in manure at the meeting. There is in progress a Finnish project, which develops a system for national standards for nutrient content in manure. In Denmark the normative manure system has been used already 20 years. These annually revised standard values are used for fertilization planning and control. Also in Poland and Russia there is work going on concerning revision of standard values. Estonia has had regulation since 2014 on manure standards. German methodology is based on a mass balance approach.

It seems that manure standards will develop in the same direction in the Baltic Sea Region, which creates a good basis for cooperation. It was agreed that the Agri group should identify or jointly develop methodologies that could be recommended for use in the Baltic Sea region when establishing national standards for nutrients content in manure. It was also agreed that an expert workshop will be held in November 2015 to consider the issue in more detail.



E.g. the biodynamic farm was visited at the pre-meeting tour.

Finally, it was stressed the importance of stakeholder involvement in development of a normative manure system.

Nutrient bookkeeping and balances

At the 2013 HELCOM Ministerial Meeting it was agreed to promote and advance towards annual nutrient accounting at farm level, taking into account soil and climate conditions giving the possibility to reach nutrient balanced fertilization and reduce nutrient losses. The work toward the goal has been started. To find out the current status HELCOM expert workshop on nutrient bookkeeping and nutrient balances was organized in Germany in April 2015. The results of the workshop were discussed at the meeting.

There are major differences

in the nutrient bookkeeping and balance calculation in the region. In some countries nutrient bookkeeping tools are introduced and implemented only within the nitrogen vulnerable zones, while others apply them in the whole country. Depending on the country the tools are either voluntary or mandatory. Also calculation methods themselves vary from country to country.

Because all countries have their own methods it is difficult to compare results of balance calculations received in the Baltic Sea countries. If nutrient balances are used to compare the risk of nutrient losses, then the methodology should be unified. The Agri group continues to work on the topic. More information about nutrient bookkeeping in the Baltic Sea Region can be found on [HELCOM's webpage](#). ♦

HELCOM Pressure group update: Nutrients to the Baltic Sea are decreasing

HELCOM Pressure group meeting was held in Tallinn in May 2015. The main topic of the meeting was to discuss how the countries are reaching their HELCOM nutrient reduction targets.

Text Rikard Korkman, SLC, Bar graphs HELCOM

A comprehensive follow-up system for the regional nutrient reduction scheme will be soon finalized. It utilizes the most recent data on polluting nutrient inputs. The assessment of progress in cutting nutrient inputs, and all related issues, is a key task of the Pressure group.

The latest data for individual sub-basins of the Baltic Sea is revealed by the recent report on

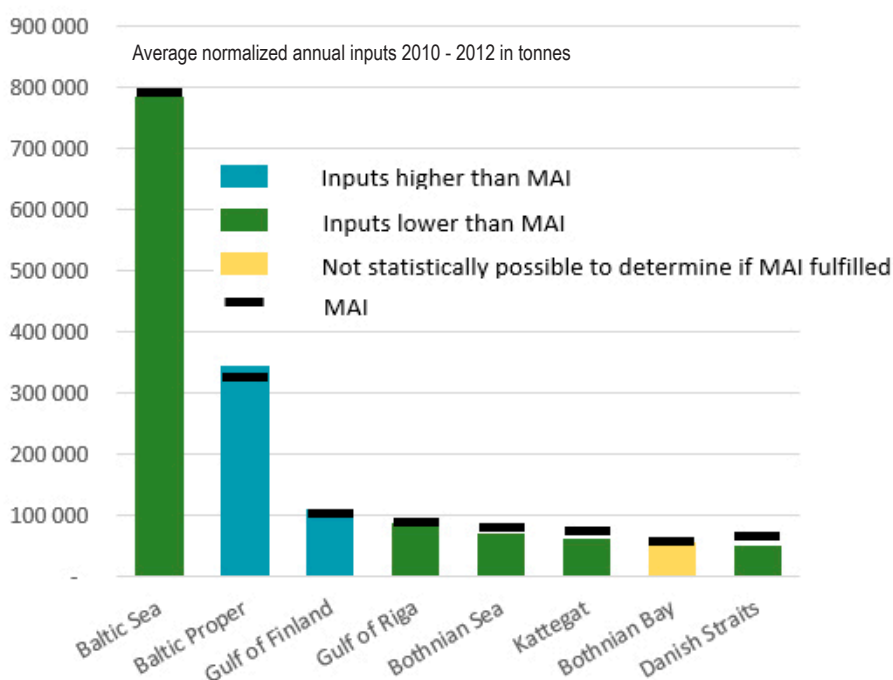
the assessment of nitrogen and phosphorus input to the Baltic Sea in 2012. The statistical trend of the overall burden of nitrogen and phosphorus to the Baltic Sea as a whole indicates decrease with 18% and 23%, respectively, in the past 15 years. However, the situation differs between the sub-basins.

According to the HELCOM nutrient reduction scheme, reductions in inputs of nitrogen were

needed to three sub-basins where Maximum Allowable Inputs (MAI) were exceeded: Baltic Proper, Gulf of Finland and Kattegat. Out of these, only to Kattegat has the nitrogen input been cut sufficiently. However, statistically significant reduction has also been achieved for the Baltic Proper, by almost 55000 tons (average annual input during 2010-2012 compared to the reference period of 1997-2003). No statistically significant reduction, compared to the reference period, can be confirmed for the Gulf of Finland. Reduction requirements were not set for nitrogen inputs to other basins, assuming that inputs were within acceptable maximum allowable input levels. Since adoption of the scheme, inputs of nitrogen have increased to Gulf of Riga and inputs to this basin now exceed maximum allowable levels.

For the three sub-basins to which there was a need for reduce phosphorus inputs – Baltic Proper, Gulf of Finland and Gulf of Riga – inputs to none of them have yet been measured below the maximum allowable level. The reduction of 20% (3700 tons) and nearly 14% (1000 tons) have been recorded since the reference period in inputs to the first two basins, while there have been no reductions in inputs to the third one.

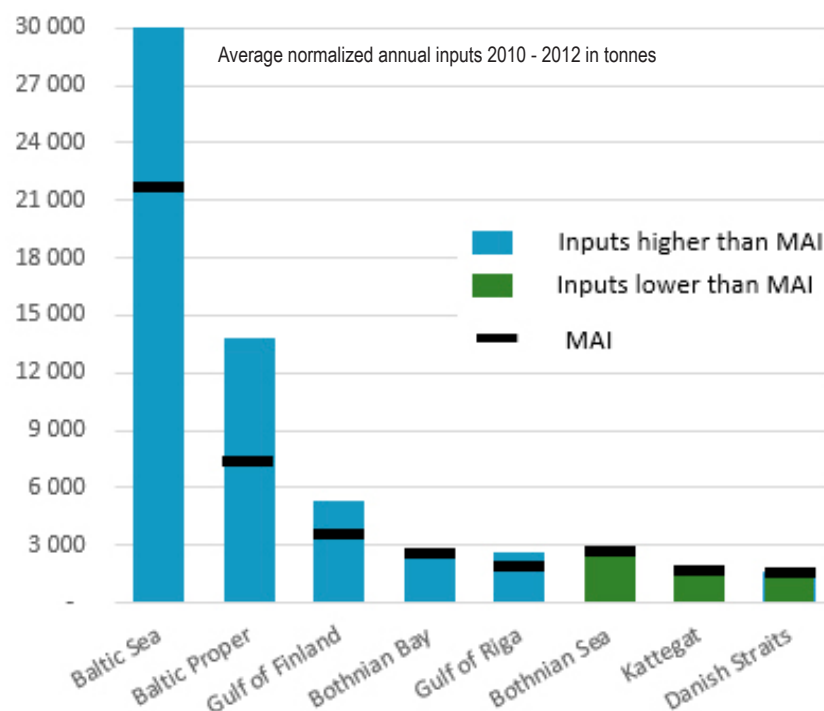
Nitrogen - Total inputs compared to Maximum Allowable Input (MAI)



MAI is the estimated highest amount of nutrient input per year to a given sub-basin, which would still allow for reaching Good Environmental Status in terms of eutrophication. The assessment results for sub-basins have been published and work is on-going to finalize an assessment of the progress of individual countries in reaching the country-wise reduction targets (CART). First results indicate that only Denmark has reached their reduction targets for nitrogen to all applicable sub-basin, and no countries have reached their reduction targets for phosphorous to all relevant basins. The assessment towards country-wise reduction targets is far more complex and requires substantial effort to be scientifically evident, as transboundary riverine inputs and retention have to be taken into account.

Source: www.helcom.fi/news

Phosphorus - Total inputs compared to Maximum Allowable Input (MAI)



HELCOM terminology explanations

Nutrient reduction scheme: The Baltic Sea coastal countries have each committed to annual targets for reducing the polluting nutrients, phosphorus and nitrogen, ending up in the sea. The HELCOM Baltic Sea Action Plan nutrient reduction scheme, originally from 2007, was reviewed and revised in 2013. The calculations of nutrient inputs to all sub-basins of the Baltic

Sea were updated, including the transboundary air and waterborne inputs, allowing for more precise targets per each country.

HELCOM Pressure group: working group on reduction of pressures from the Baltic Sea catchment area focuses on nutrient and hazardous substance inputs from diffuse sources and

point sources on land, including the follow-up of the implementation of the HELCOM nutrient reduction scheme. The group ensures the necessary technical underpinning, as well as develops solutions to the policy-relevant questions and needs. Marine litter and underwater noise are also coordinated by this group. ♦

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