

## Visions for nutrient management discussed by 300 friends of agriculture and the Baltic Sea

- manure utilization and drainage management among the solutions discussed in-depth

*The theme in this year's Baltic Sea Region Agro-environment Stakeholder Conference "A Greener Agriculture for a Bluer Baltic Sea" was 'Visions for nutrient management'. Nutrient inputs to the Baltic Sea continue to feed eutrophication in the Baltic Sea, but on the global level the situation is more dramatic. Depleting phosphorus reserves and limited availability and poor condition of other key factors of food production, like nitrogen, energy, water and arable land bring about one of the biggest challenges in the near future: How to feed the projected 9 billion people in 2050 and how to make it in a sustainable way in long term?*



Plenary panel - from left Biveson - Haapakoski - Johansson - Noerring

The speakers in the plenary section, including the Finnish Minister for the Environment **Ville Niinistö**, all raised their concern for this prevailing challenge and in the end, shared many of the proposed solutions. It is evident, also based on the global, regional and national studies cited, that nutrients, both phosphorus and nitrogen, must be better circulated and reused, not only within agriculture, but also on the broader society level in the future. For instance, according to a Swedish study, referred to by **Mats Johansson** from Ecoloop, an amount equal to nearly 70% of the phosphorus excavated or imported to the country in different forms is lost to the environment at the end of the chain in waste, waste waters or leaching. What is still maybe more alarming, the study assesses that the unit value of the lost phosphorus is 5-to-500 times more than the unit value of the input phosphorus!



There was unanimity about the need to enhance nutrient recycling and that we need new approaches and measures on all levels from the global systems level to regional, national, local and farm levels. This need for multi-level approach is brought about by the fact that typically, areas with intensive animal production post a significant surplus in nitrogen and phosphorus. This surplus needs to be reverted back into production, across all agricultural areas. It is not only about recycling nutrients, as was acknowledged by many speakers, but a lot can still be done within agricultural production practices to optimize the use of nutrients, improve production methods and develop new types of crops which either are less nutrient demanding or utilize the nutrients more efficiently. Also organic production can be developed to be more efficient.

Three parallel sessions titled 'Making the most of manure', 'Closing nutrient cycles' and 'Slow the flow to the sea' were devoted to more in-depth discussions about the solutions and their implementation. While the second session focused more on aiming for a closed nutrient loop through adapted farming practices, organic fertilizers and organic wastes, the other two sessions dealt with key issues in the Baltic Compact project: Manure handling technologies and field drainage and water management in the landscape.

### ***Making the most of manure***

The session on manure handling, chaired by **Knud Tybirk** from Agro Business Park presented outcomes from Baltic COMPASS and Baltic Manure projects. In addition, more holistic perspectives on phosphorus and manure management were provided by representatives of the academic community. In addition to Mr. Tybirk, speakers in the session were **Markku Järvenpää, Lars Jensen, Sari Luostarinen, Elisabeth Falk, Erik Sindhøj, Henning Foged** and **Lorie Hamelin**. The presentations covered main parts of the production chain from feeding to waste handling, with a glance at the interconnections with energy production and land use. The participants of the session learned about and exchanged views, for instance, on different manure processing and fertilizer application technologies and their impact in terms of nutrient efficiency. They also heard about an example from Bornholm, Denmark, where farmers cooperate on mobile slurry separation in order to have a better fertiliser for their field in the form of the separation liquids, while separation solids id delivered to the regional biogas plant. These examples provided a good overall account on the possibilities, and the needed steps both on the administrative level and legislation and in the private sector.

According to Baltic Manure estimates of the existing manure biomass potential for biogas production in the BSR, only about 2% of the potential is currently used. There are administrative, technological, financial and political bottlenecks standing in the way, which need to be addressed urgently. The same goes for all advanced manure processing, in very rare cases is the investment in modern technology directly profitable in terms of pure farm economics – either the subsidies must be redirected more towards technology investments, or the other related benefits would have to be priced in order to make investments pay off for the farm owner on a larger scale. The recommendations put forth in the presentations advocate increased attention to knowledge sharing platforms and readjustment of incentives, both regulation, subsidy and market based, to encourage modern manure handling and nutrient efficiency more broadly.

“Looking at livestock production, to increase nutrient circulation we need to institute a certification mechanism for composting and digesting of manure and treat this processed manure as a resource, not waste, which would accelerate its utilization for marketable products”, says Tybirk.

As uniform guideline for administrators and policy makers, the speakers in the session advocate to maintain an open mind, set a long term vision and act now.



### *Slow the flow to the sea*

Drainage and water management on the farm and landscape level was chosen as a theme for the parallel session chaired by Kaj Granholm, project coordinator for Baltic Compact from the Swedish University of Agricultural Sciences. The theme of the session was motivated by the idea that in water the synergies between agricultural production and environment meet in a tangible way, as well as by the fact that existing drainage systems are reaching the end of their life span in many countries and there is a need for their renovation, taking into account the needs of both private and public interests and the pressures brought about by i.e. the changing climate. Speakers in the session, **Pia Kynkäänniemi**, **Uwe Rammert**, **Kaisa Västilä**, **Ville Keskiarja**, **Tomas Johansson**, **Jülija Travina** and **Mikhail Durkin**, represented universities, national authorities, ministries and HELCOM. The topics covered ranged from applying controlled sub-surface drainage on the farm scale and different innovative applications in the use of the drainage water to planning issues on the landscape scale. Representatives from national agricultural authorities from Sweden, Finland and Latvia provided an insight to the situation and priority issues in their respective countries. Although it is demanding to balance between the environmental and agricultural interests, the presentations and discussions in the session reinforced the understanding that agricultural drainage management, so that it both enables to sustain profitable production and brings public benefits beyond the farm, is an interesting issue to build further cooperation around.

According to Granholm, “there are so many potential stakeholders as the issue is essentially of land use on the local level. It requires a lot of attention to communication between the actors. Governance practices need to acknowledge the due role of administration while empowering the local level. Thus it will be ensured that context specific priorities and knowledge are taken into account”. Granholm is happy to see that this kind of two-way thinking in governance is recognized as the way forward also on the HELCOM level, which was one of the messages in the presentation by Professional Secretary Mikhail Durkin.

As was advocated by the participants in the session, in assessing the benefits of drainage management, one must look into the impact on soil quality, farm productivity as well as water quality or other objectives which are important in the specific contexts. There is still little knowledge about the optimal implementation and effect of different advanced drainage solutions, like controlled subsurface drainage, not to even mention about implementation of water management across the farm and landscape levels. Therefore all stakeholders warmly welcome further international cooperation in the issue to share existing knowledge and develop pilot projects.





Andrzej Jagusiewicz, the Head of the Chief Inspectorate for Environmental Protection of Poland, who expressed interest to secure that the conference will be held again in 2014, possibly in Poland

Among the 31 speakers at the conference were also **Risto Artjoki**, the state secretary from the Finnish Ministry of Agriculture and Forestry; founder of the Baltic Sea Action Group **Ilkka Herlin**, whose speech was delivered by Paula Biveson, farmer **Toni Haapakoski** from Finland; **Paul Speight** from the European Commission DG Environment (via video link); **Niels Peter Nørring** from the Danish Agriculture and Food Council; **Carlo Leifert** of Newcastle University and **Ewald Schnug**, Head of Institute of Crop and Soil Science at the Julius Kuehn Institute in Germany and president of the International Scientific Centre of Fertilizers (CIEC), as well as **Andrzej Jagusiewicz**, the Head of the Chief Inspectorate for Environmental Protection of Poland, who expressed interest to secure that the conference will be held again in 2014, possibly in Poland. All presentations and other conference material can be accessed on the conference's website [www.gabbs.eu](http://www.gabbs.eu). A comprehensive conference report is up-coming and will be also published on the website.

*The fifth "A Greener Agriculture for a Bluer Baltic Sea" Stakeholder Conference ([www.gabbs.eu](http://www.gabbs.eu)) was in late August 2013 held in Helsinki, Finland. The number of participants has gradually increased over the years as new networks are connected to this platform. This year's event was organized in cooperation with three agro-environment projects financed by Baltic Sea Region Programme (Baltic Deal, Baltic Manure and Baltic Compact), and WWF as the main organisers supported by another BSR Programme project BERAS Implementation as well as the Programme's water cluster Baltic Impulse, International Scientific Centre of Fertilizers (CIEC), the Nordic Association of Agricultural Scientists and HELCOM. The conference is highlighted as an example of cluster activity in the agro-environment field under EUSBSR Horizontal Action Sustainable Development and Bioeconomy. The conference was sponsored by Biovakka, Yara, Finnish Field Drainage Association, Honkajoki Oy and the Finnish Ministry of the Environment.*

