

# **Regional Conference**

## **Closing the mineral cycles at farm level - Good practices to reduce nutrient loss in the Wielkopolskie region**

**Thursday, 13 November 2014**

**Congress Center Hotel IOR - Institute of Plant Protection - National Research  
Institute, ul. 20 Władysława Węgorka St. 60-318 Poznań**

### **Aim of the conference and participants**

This conference aimed to present the results from the EU project "Resource Efficiency in Practice - Closing Mineral Cycles" and especially the identified good practices for the Wielkopolskie region; to highlight farmers' experiences, particularly regarding successful implementation of good practices; and to initiate discussions amongst the participants on the need for further action and identifying solutions to effectively address nutrient loss in the region.

Around 45 people participated, representing farmers, farm advisers, regional and national policy makers (incl. representatives of regional water boards and the Ministry of Agriculture), researchers and students. The conference was supported by the Wielkopolska Agriculture Advisory Centre in Poznań and WWF Poland.

### **Identified good practices for the region**

A selection of six good practices for the Wielkopolskie region was presented by Marion Sarteel, the project partner from BIO (Deloitte). The presentation aimed to clarify whether these practices fit well within the context of the Wielkopolskie region, are well accepted by the local stakeholders, and covered the success factors and barriers which influence implementation. Below are the six good practices:

- Separate manure liquid and solid fraction
- Cool slurry
- Extend N fertilisation management plan for all agricultural sites and develop P fertilisation management plan
- Use appropriate application technique
- Use catch crops to reduce nutrient leaching
- Construct sedimentation ponds to retain nutrients from run-off water

### **Key messages from the presentations**

Two regional stakeholders presented their experiences with on-farm activities to address nutrient loss at farm level as well as an overview on the legal framework for resource efficiency in agricultural areas.

Janina Weronika Saacke, a farm owner in the Wielkopolskie region, outlined her experience with implementation of good practices on her farm, including composting, using catch crops and inter-cropping, appropriate crop rotations and using pulse crops. Katarzyna Pastuszczak, a representative of the Water Management Board in Wrocław, presented the legal framework for the implementation of the Nitrates Directive in Poland.

## **Results from the working group questions**

### **1. Success factors and barriers to the uptake of good practices (Facilitator: Ewa Kwapich, Wielkopolska Agriculture Advisory Centre, Poznań)**

The group discussions showed that, in general, the identified six good practices were considered by the participants as fitting well within the context of the Wielkopolskie region and were well accepted by the local stakeholders. However, high costs of devices were mentioned as an obstacle to implement several practices, for example, separation of solid manure from liquid, cool slurry and sedimentation ponds construction. Awareness raising was highlighted as another important issue to consider, in particular, for sedimentation ponds construction. Several additional good practices were discussed that were well accepted by farmers and which contributed to the protection of waters against pollution from agricultural sources in the Wielkopolskie region:

- Liming practice is widely applied due to the acidic soils in the Wielkopolskie region. It is used to increase soil pH and improve the assimilation of nutrients by plants. Soil sampling, which is expensive, is needed to properly lime and avoid any counterproductive effects. Thus, awareness needs to be raised on the environmental and agricultural benefits of liming. Note that the Ministry of Environment and the Ministry of Agriculture do not agree on liming benefits.
- Fertilisation management plan based on a soil fertility test is seen as a useful instrument to avoid excessive inputs of mineral fertilisers to soil and to save associated costs. Such plans are drafted every year for farms over 100 ha, however, soil analysis is conducted only every 3 years; what is considered insufficient.
- Precise fertilisation is seen as an effective practice to save fertilisers and related costs, though this is associated with high costs.
- Using catch crops and intercropping is widely implemented for grassland management or to avoid tillage-induced water erosion. It was suggested to provide financing to this practice on all of the arable area and not only for the areas prone to water erosion.
- Growing legumes were suggested for inclusion in the next Rural Development Programme (RDP) programming period as they enhance the nitrogen-supplying power of soils and improves soil quality in general.
- Using effective microorganism management was mentioned as a potential solution by some farmers as an effective practice to limit the foul smell of ammonia released from manure and enhance the uptake of nutrients; however the benefits of this practice are not scientifically proven yet.

The following barriers were identified that hinder uptake of good practices:

- Lack of farmer knowledge - theoretical and regarding practical actions

- Low consumer awareness - consumer awareness could act as a good impetus for farmers to adopt good practices
- No or very few collective actions - thus, as individuals, in particular the small Polish farmers cannot afford to buy expensive but necessary equipment or implement different techniques

## **2. *New and innovative practices* (Facilitator: Anna Giera, Wielkopolska Agriculture Advisory Centre, Poznań)**

The discussions focused on the three stakeholder groups that are important in applying innovations, namely farmers, advisors and researchers.

For farmers, the fear of "new" and "unknown" practices and the risks associated with them were identified as typical and the main barriers to introduction of an innovation. This concern, however, relates primarily to smaller farms, as larger farms have greater financial resources and can afford to purchase new equipment and test new techniques on their land. In addition, larger farms often have their own personnel specially trained for certain technologies, which facilitates access to knowledge and implementation of innovations.

The main barrier for scientists is that research institutes are primarily rewarded for conducting basic research and writing articles for scientific journals without necessarily promoting the integration of scientific progress and innovation into practice. However, the point of view of research institutions is changing now. An example is BIOSTRATEG, which is the national strategic program of research and development for "Environment, agriculture and forestry". It includes implementation of projects aimed at introducing innovations.

The gap between the farmers and the research organisations is bridged by agricultural advisors, with increasing share of information and communication observed in recent years. Though, the extent of this interchange is not yet sufficient. A positive example is the Wielkopolska Agriculture Advisory Centre in Poznań, which has a network of demonstration farms that serve as a model for others. It was emphasised that the most reliable information for a farmer is given by another farmer. However, most innovations never get implemented, thus the advisors need to approach and motivate farmers.

Several barriers were identified that may affect the introduction of innovative practices to reduce environmental pollution, including:

- Mentality obstacles – it is difficult to persuade people who do not like changes to apply an innovation
- Funds - research is expensive, and each stakeholder group in the innovation process additionally requires appropriate financial resources
- Regulations - rules should be flexible and adjusted to the local conditions as well as promote the functioning of organic farms
- Bureaucracy - documentation should be consolidated (in particular, reporting requirements) and understandable for farmers
- Education - the importance of the environment to future generations should be taught

Two examples of innovations designed to protect the environment from excessive nutrients were given by the group's participants:

- use of N-testers – a hand-held tool that allows farmers to determine the dose of nitrogen required for application by measuring the chlorophyll content in the leaves, which is closely related to the level of nitrogen in the plant, and
- use of effective micro-organisms – this method can result in better assimilation of nutrients.

### **3. Potential for cooperation and joint actions (Facilitator: Maciej Sztykowicz, Wielkopolska Agriculture Advisory Centre, Poznań)**

The participants noted that cooperation and joint actions are taking place, though these initiatives are still infrequent. They identified a number of successful joint actions and cooperation practices, advantages of those practices and associated problems.

Examples of good practices for cooperation and joint actions:

- Shared educational practices – knowledge transfer, e.g., via demonstration farms
- Joint cleaning of drainage ditches by inhabitants of rural area
- Collaborative use of agricultural machines
- Collaborative purchase of testing devices (e.g., for plant nutrient requirements) by villages or cooperatives
- Shared sewage plants
- Cooperation in information sharing
- Introduction of buffer zones by farms in the region - more efficient if widely implemented
- Cooperation between farmers and regional as well as national policy makers/governing bodies to harmonise procedures, controls and monitoring rules

Advantages of cooperation:

- Better education can contribute to growth of farmers' awareness
- Dissemination of good practices
- More successful implementation by learning from other farmers' experiences
- Pooling financial resources, in particular for small farmers, can be especially useful to overcome lack of financial resources to purchase equipment or rent services

Problems associated with cooperation:

- Casual, not systematic cooperation - farmers manage to unite in critical situations but not permanently
- Problems with farmers' mentality - lack of trust to neighbours - they are seen as competition
- Difficulty with involving local authorities

#### **4. Fine-tuning the legal framework and financial support (Facilitator: Marta Kalinowska, WWF Poland)**

The group discussions focused predominantly on the improvement of the implementation of the EU and national water protection legislation. Some gaps in the national legislation were identified and discussed as well as the need for financial support from the Common Agricultural Policy and the Rural Development Programme. The need to constantly improve cooperation between the Ministry of Agriculture and the Ministry of Environment was underlined, as was the need to increase awareness amongst farmers.

- Awareness raising amongst farmers should highlight that sustainable agriculture brings economic profits due to reduced fertiliser run-off, for example. Strong agri-advisory services with dedicated funds, workshops, informational campaigns, etc. could serve this purpose. Emphasis should be placed on simple and cost-effective solutions in order to encourage farmers to implement best practices, whilst emphasising that not all changes in the laws pose threats to them.
- Support from the Ministry of Agriculture for effective implementation of the EU Nitrates Directive is necessary. So far, the Ministry of Environment has been primarily responsible for this issue. In addition, funding possibilities within Nitrate Vulnerable Zones (NVZs) should be further assessed and those already available made clear to farmers. The farmers were misled into thinking that those located in NVZ are not allowed to apply for Rural Development funding. In reality, farmers can apply for Rural Development funding (e.g., under the agri-environmental measure) for practices above the national legal requirements' baseline. Farmers located in NVZs can also receive Rural Development funding for investment to comply with new national requirements, including those in the framework of the EU Nitrates Directive, within one year from the approval of the new measures. For young farmers setting up for the first time as head of an agricultural holding, support may be provided for up to 24 months for investment to comply with EU standards.
- Legislation on waste water management for local communities in rural areas is not efficient in its current shape. Control of waste water disposal is weak and authorities have no good solutions as to how to resolve this issue. This issue is of particular importance considering about 70% of waste water is leaching into ground water.
- The agri-environmental scheme within the draft of the Rural Development Programme 2014-2020 proposed by the Ministry of Environment is much weaker in comparison to the 2007-2013 programming period. Furthermore, much fewer funds are dedicated to water protection measures. Instead of reducing these measures due to lack of interest by farmers, the Ministry of Agriculture (which is responsible both for drafting the RDP and its implementation) should search for solutions to improve their popularity and encourage farmers to take up those crucial measures. Additionally, the regional funds for environmental protection and water management could create a new financing mechanism, e.g., for group leaders, in order to cover the gap created by the RDP 2014-2020.
- Composting has been indicated as one of the key agri-environmental practices. Therefore, funding should be provided for it in the future. This practice should be implemented by farmers in cooperation with agricultural advisors (supporting farmers).
- The scope of the State Environmental Monitoring scheme's water monitoring should be broadened to designate a bigger number of sample points. This would provide a

better overview on contamination by nitrogen and phosphorus and their potential sources, which would contribute to a better understanding of the real pressure from agriculture on water.

### **Key messages and conclusions of the conference**

Summarising the results of the presentations, working group discussions and panel discussions, the following most important messages/main findings emerged:

- Cooperation between the Ministry of Environment and the Ministry of Agriculture needs to be improved with regards to implementation of the regulations addressing agriculture and the environment. Incentives through legislation both at EU and national level should be coordinated.
- Lack of knowledge is a barrier to uptake of some measures (e.g., sedimentation ponds). Knowledge transfer amongst farmers should be promoted regarding the benefits of limiting nutrient loss and adopting sustainable farming practices. Accessible consulting centres and trainings are examples of ways this can be promoted.
- New and innovative ways to achieve knowledge transfer and information flow should be created and promoted to reach farmers more effectively. This would potentially help streamline the overwhelming amount of information available.
- Regarding the lack of financial resources to adapt farms to sustainable farming and the role of the state authorities, greater support could contribute to implementation of good but costly practices on a broader scale (e.g., cooling slurry). Subsidising the generation of compost could also be advisable and growing legumes could be included in the next RDP programming period.
- Agricultural advisory services play an important role in reaching out to farmers. Thanks to frequent direct contact with the farmer, an advisor is a trusted source of knowledge. Proper support of these services is necessary for promotion of best practices, as well as visual demonstration of innovative methods.
- Cooperative and joint actions are seen as a good approach; however, farmers' mentality may pose barriers to willingness to cooperate or effective joint actions (e.g., lack of trust to neighbours). Awareness raising on various forms of cooperation and potential benefits should be provided, and regulatory support for this type of approach may be useful.