

Regional Conference

Closing the mineral cycles at farm level – Good practices to reduce nutrient loss in the Lombardy region

Wednesday, 5th November 2014
E.c.ho Hotel, Via Andrea Doria 4, Milan, Italy

Aim of the conference and conference participation

This conference aimed to present the results from the EU project "Resource Efficiency in Practice - Closing Mineral Cycles", particularly focusing on the identified good practices for the Lombardy region, to highlight farmers experiences with successfully implementing good practices and to initiate discussions among the participants on identifying solutions and the need for further actions to effectively address the nutrient surplus in the region.

In total, 57 people participated, representing farmers, farm advisers, civil servants from environmental protection agencies and from regional and local governments, representatives of farmers unions, researchers and students.

Identified good practices for the region

A selection of six good practices for the Lombardy region was presented by Clement Tostivint, the project partner from BIO by Deloitte. The presentation aimed to clarify whether these practices are well-suited in the context of the region and well-accepted by the local stakeholders. In addition, it discussed the success factors of and barriers to implementing them. They include:

- improving manure storage and cover
- improving fertilisation management plans for all agricultural sites
- improving manure processing
- using appropriate manure application techniques
- using catch/cover crops
- improving irrigation systems

Key messages from the presentations

Three regional stakeholders presented their experiences on the activities to address nutrient surplus which considered the farm level as well as the policy and financial support framework for resource efficiency in agricultural areas.

Flavio Sommariva, a representative of the Regional Breeders Association in Lombardy, and Alessandro Gandolfi, a farmer and a representative of the Coop San Lorenzo - Pegognaga MN, demonstrated their experience on the separation and delocalisation of solid part in cattle sewage as one of the options to reduce nitrogen load. Gianpaolo Bertoncini from the Lombardy Region, Division General of Agriculture, presented the regulatory and financial support addressing nitrogen surplus problems in the region.

Results from the working group discussions

1. *Success factors and barriers to the uptake of good practices* (Facilitator: Flavio Sommariva)

The group discussions predominantly focused on barriers considering that the dissemination of good practices is still scarce in Italy. The main themes causing obstacles to implementing good practices were highlighted, including: high diversity of farm types, lack of financing and inflexibility of legislation:

- Italian farms are very diversified in their structures, issues and management, often resulting in technologies that are not directly applicable in all cases and need to be adapted.
- Often good practices cannot be applied to one farm, mainly due to lack of potential in the investment, which is why it is necessary to encourage the forming of consortiums and cooperatives, etc. It is also important to create operational relations among different groups with complementary interests (for example, areas with low organic matter and areas with a high concentration of livestock). Technical assistance should encourage an adequate comparison of costs incurred and those arising from the application of innovation.
- The use of public subsidies remains an important way forward, considering the availability of resources resulting from the RDP. These resources should, however, be carefully and precisely directed according to clear policies and directly applicable and development plans that are stable and can be implemented over long periods of time (in order to amortise the investments).
- Legislation is not always clear, often generating an excess of bureaucracy. It should increase the possibility of application flexibility that, without blurring the principles, allows its application in areas that vary greatly in their agronomic, management, environmental and meteorological problems, etc.
- The real innovation in the regulatory landscape would be to go from schemes with passive and coercive rules (fixed application limits, various prohibitions) to active rules that actually reward the introduction of innovation, especially operational innovation. This incentive would make investment in innovation economically viable.

2. *New and innovative practices* (Facilitator: Francesca Perazzolo)

The participants of this working group agreed that the presented practices could represent good practices to limit nutrient loss in Lombardia. In particular, some techniques that have been considered relevant include: balance phosphorous application, use subsurface irrigation also for spreading nutrient (e.g., ammonium sulphate by stripping treatments) and incorporation of manure and relocation of surplus in other areas.

In addition, during the discussions, some additional practices and techniques emerged which have a more careful management of mineral and organic fertilisers in common and could represent additional solutions to counteract nutrient loss:

- Use of cover crops and green manure especially in areas with problems of a loss of organic matter and how to find low price organic fertilisers (e.g., rice fields).
- Use of mineral fertilisers with nitrification inhibitors or manure cover to limit nitrous oxide emissions.

- Use of conservation and precision farming techniques, for example, distribution systems based on precision farming techniques or low impact tilling techniques to improve the fertility and quality of the soil.

To support the uptake of these practices, there is a need to incentivise scientific research in order to develop and test innovations (for example, to improve the efficiency of protein nitrogen absorption by animals to reduce the excreted amount of nitrogen) and enhance the role of land-use planning as a governance tool.

3. Potential for cooperation and joint actions (Facilitator: Giambattista Merigo)

The discussion showed that in a regional context such as in Lombardy, the use of centralised treatment systems is a strategic action that can restore a proper balance between agricultural and environmental needs. The participants provided some concrete experiences of cooperative treatment plants that have resolved local problems with an advantageous solution for farmers, the environment and the local community, which also involved creating new jobs. However, the debate also showed that joint actions in Lombardy to implement good practices to close the minerals cycles and to limit nutrient loss, while being strategic and appropriate in a regional context, are not very widespread. The following aspects emerged from the discussions:

Strengths that characterise the carried out projects

- Clear and shared economic and environmental objective
- Technical advice with in-depth knowledge of the sector and the agronomic, economic and environmental aspects
- Presence of a leader to represent all the companies involved
- A management model has already been successfully implemented in the same region
- A partner able to offer sufficient capital guarantees

Weak points of the carried out projects

- Cultural difficulties of entrepreneurs in accepting structured forms of cooperation
- Complicated bureaucratic procedures for authorisation of implementation and management
- Need of huge investments
- Lack of recognition for natural and renewable fertilisers
- Lack of specific indicator of environmental results

Fundamental requirements for developing joint actions

- Transfer of knowledge acquired in past projects
- A dedicated and stable (in the long-term) national and regional legislative framework
- Priority access to economic support measures for the consortiums that reuse residue from agricultural production (for example, incentives for renewables, RDP, special programmes)
- Presence of project management figures with sound technical expertise and specific experience
- Single authorisation procedures (coordinated discussions among agencies)
- Defined territorial areas and specific treatments

4. Fine-tuning the legal framework and financial support (Facilitator: Gianpaolo Bertoncini)

The participants agreed on the point that in order to strengthen sustainable land management and to reduce nutrient loss, an improvement of the current legislative structure regionally and nationally and of the related financial support are required. At the moment, they do not sufficiently support these management practices.

The adoption by a company of an innovative management practice is encouraged by the following favourable factors:

- A culture of change (typical for a serious entrepreneur/manager), including the adoption of ethical principles (organic farming, conservation farming, etc.)
- Under normal conditions, the firm needs to constantly improve technologically and adapt organisationally to the market and optimise its production process
- A potential economic advantage for the company, from its economic validation and low cost of implementation
- A possibility of a gradual adaptation of a farm to innovation by receiving a solid technical basis through an independent and reliable technical assistance service
- Involvement in a dissemination initiative in order to share experiences with other farms or technicians and a network of experimentation and promotion of ethical behaviour and results
- A regulatory framework that is stable over time, technically correct with clearly and adequately communicated objectives and uniformly applied in the territory (between various regions and provinces)
- A body that shares knowledge and certifies it is also developing assessment/simulation tools (e.g., expert systems) to assess operational and cost-effective benefits
- Easy access to contributions (e.g., the possibility of gradually completing the documentation accompanying the application, the use of the "expression of interest" tool for the purposes of selecting contribution applications)

Unfavourable factors:

- Inflexible laws, narrow limits and excessive fiscal controls directly lead to a renunciation of change and innovation (for example, minimise the size of the herd so as not to "fall" into an Integrated Environmental Authorisation procedure)
- Not very coherent, knowledgeable and competent control systems

Financial support is an element that can be the key to bringing innovation to the farm. Some participants called for financial support when environmental protection issues are in play which must be addressed with expensive but unprofitable methods (i.e. do not imply an economic benefit but are a net cost for the farmer). Others, while acknowledging the costs, recalled the polluter pays principle. It was suggested that financial support could be directed toward:

- Economic recognition of the role of protecting the environment (given that the primary objective of farming is the production of food)
- Rewarding the territorial impact of ethical behaviour on environmental media (soil, air, water, etc.)
- Adapting to concrete and achievable objectives specifically targeted to the local conditions

Suggested approaches:

- Credit institutions should require a prior assessment of the efficiency of the investments (using cost-benefit analysis)
- Suggest working groups of the European Innovation Partnership to encourage farmers to join innovation projects to be proposed for funding in the RDP framework

Key messages and conclusions of the conference (Final comments: Giorgio Provolo)

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

1. Technologies for implementing good practices are available and, even if there is a need to examine some aspects more closely and develop new techniques, there should be no particular technical implementation problems.
2. The law has been highlighted in all the discussions as a critical element. In addition to clear and comprehensive rules for the various aspects, clear and applicable guidelines are needed. The flexibility of the rules to take account of local situations and ethical behaviour is essential.
3. A shortage in funding was not highlighted, but it is often not dispensed in a targeted manner. The funding should be more directed and specific to make the adoption of good practices more effective.
4. Cooperative management is certainly a possibility for dealing with effluent management in areas with a high load. Clear rules, incentives and legislation that consider rewarding the aggregation of farms to manage effluents are indispensable.
5. Dissemination and technical assistance are essential elements for the implementation of good practices. Despite the considerable efforts in this direction, more training of technicians and a more direct action for dissemination to farmers is needed.
6. Research activities should be financially supported to improve the knowledge on existing good practices and to find new techniques to support farmers to close nutrient cycle (nitrogen removal, phosphorus recycling, improved application of fertilisers, etc.).