DRAFT FOR SuMaNu Policy recommendation #5

The SuMaNu project platform produces a set of policy recommendations to support its aim of sustainable agriculture and nutrient recycling. These policy recommendations have been developed based on earlier projects and expert work in the SuMaNu project with a particular focus to serve the objectives and drafting process of the HELCOM Baltic Sea Regional Nutrient Recycling Strategy.
Please note that this is a draft. The final version will be published later.

Safe manure nutrient recycling

Unnecessary addition of trace elements in animal feed and use of pharmaceuticals in animal rearing need to be avoided to minimize their excretion to manure. When manure is used as a fertilizer, these harmful compounds end up in agricultural soils, and potentially in the food chain and waterways, causing risk for both the environment and human health.

Further, the hygienic quality of manure needs to be secured, especially when processing manure from several farms and/or with additional feedstocks. Precautions should be taken during processing, storage and logistics to prevent recontamination.

The co-processing of sewage sludge and manure is not advisable as the risks related to trace elements, organic contaminants and hygiene typically higher in sewage sludge than in manure.

Background

To promote circular economy and decrease dependency on imported mineral fertilizers, which are energy intensive to produce, more efficient utilization of manure, the main nutrient-rich side stream in the Baltic Sea region, is required. For more efficient use of nutrients, crop fertilization should be based on crop needs. In areas, where manure is produced above the regional crop need (i.e. hot spot areas), manure reallocation and processing are necessary to lower transportation costs. Prerequisite is also to guarantee safe use of both manures as such and manure derived fertilizers in regard to their hygienic quality and contaminant levels.

Different kinds of trace elements, pharmaceuticals and pathogens are found in manures. Trace element concentrations are commonly low, but manure can contain higher levels than mineral fertilizers and the actual annual input may thus become higher when using manure. In addition, some trace elements are used as feed additives. Therefore, excessive manure application can lead to the accumulation of trace elements in soils. Among the pharmaceuticals, the concern of antibiotics and their metabolites on human health has been raised due to the possibility of their entering the food chain from pasture or after application of manure on agricultural fields. They may contribute to the development and spread of antibiotic resistant microbes which is a global concern for human health.

Different manure processing technologies have various effects on contaminants and pathogens. The processing technology affects the trace element concentrations in the resulting fertilizing product due to e.g. water removal and subsequent concentration of compounds into smaller volumes. Trace elements may also originate from co-feedstocks entering to the process. Processing technologies may partially or totally remove antibiotic compounds from the resulting manure-based fertilizers depending on the technology used. When manure from several farms is processed in the same processing plant with or without other feedstock there is a risk of pathogens, plant diseases and invasive species spreading from one farm to another unless hygienization is applied.

Implementation

EU regulation on fertilizing products (EU 2019/1009) will regulate e.g. processing conditions, trace element and PAH concentrations, and pathogens in the products when making fertilizers available on the EU internal market. To ensure high quality manure derived fertilizers, this EU regulation should be obeyed as a minimum requirement for all manure derived fertilizers, although they would not be intended to EU's internal markets. To promote sustainable use of pharmaceuticals, especially antibiotics, in animal rearing, it should be investigated, if their unnecessary use could be regulated at the EU level. EU regulation on animal by-products (1069/2009) needs to be obeyed. To keep the knowledge and regulations on safety issues updated, more research is needed on upcoming issues, such as antibiotic resistance and processing technologies.

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