SuMaNu Policy Recommendation 5

The SuMaNu project platform has produced a set of policy recommendations to support transition towards more sustainable agriculture and efficient nutrient recycling. These policy recommendations reference and complete each other and the reader is encouraged to read them all.

Minimal use of harmful substances and careful manure processing ensure safe recycling of manure nutrients

- Animal rearing conditions need to be optimised (i.e., efficient herd health management practices) so that antibiotics and other pharmaceuticals are used only when necessary.
- Trace elements should only be used according to the nutritional needs of the animals to minimise their excretion to manure.
- 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.
- Co-processing of sewage sludge and manure is not advisable as the risks related to trace elements, organic contaminants, and hygiene are typically higher in sewage sludge than in manure.

Background

To promote circular economy and to decrease dependency on imported, energy intensive mineral fertilisers, manure needs to be utilised sustainably as it is the main nutrient-rich side stream in the Baltic Sea region. Manure contains also trace elements, pharmaceuticals and pathogens which have implications on safe use of manures as such and manure derived fertilisers.

Pharmaceuticals

Among the pharmaceuticals, human health concern of antibiotics and their metabolites has been raised due to possible contamination of the food chain via pasture or application of manure on agricultural fields. Manure derived antibiotics may contribute to the development and spread of antibiotic resistant microbes posing a global concern for humans, animals, and the environment. In addition, also other pharmaceuticals can cause risks. For example, antiprotozoals can accumulate in soil and cause toxic effects on plants.

Trace elements

Some trace elements are used as feed additives. While trace element concentrations are commonly low in manure, they are often at a higher level than in mineral fertilisers, leading to higher annual input in soil. Therefore, excessive manure application can lead to trace element accumulation in soils, and the elements can potentially end up in the food chain and waterways, causing risk for both environment and human health.

Manure processing

Manure processing technologies have various effects on contaminants and pathogens. The processing technology affects the trace element concentrations in the resulting fertilising product due to e.g. water removal and subsequent concentration of the unwanted trace elements. 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 fertilisers depending on the technology used.

When manures from several farms are processed in the same processing plant with or without other feedstocks there is a risk of pathogens, plant diseases and invasive species spreading from one farm to others unless hygienisation is applied.

Implementation

EU regulation (2019/6) on veterinary medicinal products will restrict from Jan 2022 onwards the prophylactic use only to exceptional cases and metaphylactic use of antibiotic medicinal products when the risk of spread of an infection or of an infectious disease in the group of animals is high and no other appropriate alternatives are available.

EU regulation on fertilising products (EU 2019/1009) regulates e.g. processing conditions, trace element and PAH concentrations and pathogens in the products when making fertilisers available on the EU internal market. To ensure high quality manure derived fertilisers, EU fertiliser regulation should be obeyed as a minimum requirement for all manure derived fertilisers, even if they were not intended to EU's internal markets.

EU regulation on animal by-products (1069/2009) lays down health rules. To keep the knowledge and regulations on safety issues updated, more research is needed on upcoming issues, such as antibiotic resistance and manure processing technologies.

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