

EXPLORING VARIATIONS IN THE DEMAND FOR FERTILISERS DERIVED FROM RECYCLING IN NORTH WEST EUROPE

By

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Summary

The nutrients nitrogen (N), phosphorus (P) and potassium (K) are often applied to agricultural fields as mineral fertilisers. Currently, fertiliser production in the European Union (EU) depends on imported (P), non-renewable, mined (K) and energy-intensively produced (N) raw materials. Within the scope of the North West Europe Interreg project ReNu2Farm, the opportunities for the replacement of nutrients from traditional mineral fertilisers by recycled nutrients are explored. The objectives of this paper are i) to quantify the requirement of N, P and K in various regions in NW Europe and to formulate the desired properties of the recycling-derived fertilisers (RDFs), ii) to investigate the requirements of farmers with respect to the desired properties of RDF products, and iii) to describe the legislative framework that will be of importance for the increasing use of RDFs in line with EU policy on the circular economy.

From a desk study, it was concluded that there is potential for RDFs everywhere, provided that they are tailor-made for local conditions. The requested type of RDF strongly depends on the conditions at regional and farm level and is mainly determined by crop rotation, soil type, soil fertility, fertiliser recommendations, legal application limits and the availability of animal manure. In regions with a high availability of animal manure, N-containing RDFs could be used in addition to manure. High and reliable N contents, low P contents, and a high N fertiliser replacement value are desired. RDFs with high (stable) organic matter contents and low phosphate contents may have potential as a soil improver in those regions. In regions with a low availability of animal manure, RDFs with (N)PK and with or without organic matter are desired. Because it will be difficult to find an RDF with the optimal composition for various conditions, a combined application of RDFs with mineral fertilisers is a feasible scenario for those regions.

From a survey of farmers, it was concluded that a known NPK concentration, a nutrient ratio that fits with crop nutrient demand and RDFs with a high organic matter content were identified as the most important and next most important qualities in RDFs that would encourage farmers to substitute mineral fertilisers.

The new EU Fertilising Products Regulation (FPR) 2019/1009 will facilitate the marketing of RDFs that have obtained a CE mark within Europe from 2022 onwards. A lot of RDFs will meet the criteria, which will enable their use as fertiliser products and to contribute to the circular economy.