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Demand for recycled nutrients in every region, but tailor made the highest impact

In the Interreg North-West Europe project ReNu2Farm researchers investigate the use of recycling-derived fertilisers and the exchange of nutrients between different regions. Up to now, farmers have essentially been using artificial fertilisers, for which the EU is heavily dependent on imports. For ReNu2Farm, it's important to prioritize the opinion of end users. Therefore, the investigators mapped the region-specific demand for recycled nutrients. They found a potential demand in all regions of Northwest Europe. The production of tailor made recycling-derived fertilisers will have the highest impact.

Nowadays crop farming is dependent on non-renewable resources: imported and mined phosphorus (P) and potassium (K) and mineral fertiliser nitrogen (N) that has been fixed with high energy input. But alternatives are available. Recycled nutrients from waste streams are not only excellent nutrient sources but also come in many forms: organic amendments such as compost, as well as mineral fertiliser-like products such as struvite, or liquid nitrogen such as ammonium sulphate. Not all these alternative novel recycled fertilisers fit in every farming context in every region of Northwest Europe. Researchers investigated the region-specific demand and mapped it by a recent study in the framework of the Interreg North-West Europe project ReNu2Farm.

Maps show demand in all regions of Northwest Europe

ReNu2Farm aims to increase recycling rates of the main plant nutrients, N, P and K, by focusing on the demand of farmers. The recent study analysed the crop farming context for regions of Northwest Europe by taking into consideration the crops being cultivated, the soil type and nutrient status in terms of P and K, as well as fertiliser recommendations and limitations. Animal manure which is available in most regions is also considered a valuable fertiliser. Recycling-derived nutrients are potentially used alongside animal manure, if available, as a supplement and thus reducing current mineral fertiliser volumes.

The key result of the demand research is that a potential demand for recycling-derived nutrients exists in all regions of Northwest Europe. However, many regions will require a fertiliser concentrated in nitrogen, without any P and K. These find their use as a fertiliser supplement during the growth season, when a base fertilisation with N-P-K has already been applied with animal manure in grassland and cereal cropping in regions with high manure availability, such as The Netherlands and Flanders. Also, in these regions, a NK fertiliser is likely to be demanded on holdings which produce potatoes, sugar beet or other vegetables. Cereal regions with low regional animal manure availability such as in the North of France and Southwest Germany will require a N-P-K fertiliser, preferably with organic matter, as well as grassland in Ireland on nutrient poor soils.

Adapted composition, more attractive for farmers

The researchers of ReNu2Farm want to facilitate the roll-out of recycling-derived fertiliser across Northwest Europe. The research report indicates that the production of tailor made recycling-derived fertilisers will have the highest impact. If the fertiliser composition gets adapted to regional and crop specific needs, the chances that the product is more attractive for farmers are increased. Other aspects such as ease of use, nutrient value, the fertiliser replacement value, safety and awareness of farmers towards this topic determine whether recycling-derived fertilisers will be purchased and applied to fields by farmers. Follow-up project activities within ReNu2Farm will address these issues.

>> The maps of recycling-derived nutrient demand can be accessed [here](#).

More information about the project with support of Interreg North-West Europe: www.nweurope.eu/renu2farm. The project runs until 2020 and has partners in Belgium, Germany, Ireland, France, Luxembourg and the Netherlands.

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