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What drives environmental impacts of fertilizers produced from fish wastes?

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The worldwide fish consumption has more than doubled between 1961 (9 kg per capita) and 2019 (20.5 kg) (FAO, 2022) The production in the EU amounted to 5.7 million tonnes of products from catches and aquaculture in 2018 (European Commission, 2020). Of this amount, approximately 25% – 35% is discarded as waste with variable nutrient composition and water content without further valorisation (Villamil et al., 2017). To evaluate the feasibility of producing bio-based fertilizers from the macro nutrients contained in these wastes, the Horizon2020 project Sea2Land piloted different technologies. Their environmental performance was analysed with a cradle to factory gate life cycle assessment (LCA) at two stages of production: pilot stage and industrial stage. The sidestreams were assumed to be burden-free. First results identify the main environmental hotspots, at both stages, to be the implemented concentration and drying processes such as membrane filtration or spray drying, the transport of the raw materials and the packaging of the final product. On the other hand, machines do generally not contribute much to environmental impacts and factory buildings' contribution is mainly at pilot level and with regard to mineral resources use. To lower the environmental impacts of bio-based fertilisers from fish waste, the concentration of sidestreams should be improved by using of more efficient technologies (e.g. with heat recovery) or alternative energy sources. Secondly, the production needs to be in close geographic distance of the source of the fish waste generation and the amount of packaging materials should be minimized.

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Requirements:

- maximum one page (free format, can include photos, figures)

- outline proposed content with references or web links, relevant to nutrient recovery technologies and/or to processing, analysis, LCA, application, market/distribution, farmer or stakeholder attitudes to recycled fertilisers

- must include names, organisation and email for each speaker and co-author

- specify funding programme and partners of work presented, where applicable, or website for this information