D4.2. Exploitation strategies

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement N° 101060426.

Executive summary

For the circular fertilizers that are already available in the market to improve market penetration and for the novel fertilizers to gain market acceptance several challenges have to be addressed. Higher production costs of circular fertilizers in relation to conventional fertilizers is an important barrier that has to be managed. To decrease the production cost of circular fertilizers economy of scale has to be achieved. Through large-scale production processes, the cost per unit will significantly fall, helping the CF get sold at a more economical price. The production cost is also influenced by high natural gas prices as has been the case recently. The prices of natural gas have significantly increased over the last 4 years. More specifically, according to Eurostat (2025) from 0,3 € per Kwoh for non-household consumers in the first half of 2021, prices reached 0,8 € per Kwoh in 2022 and 2023, only to fall to 0,6 € per Kwoh recently). A stable supply chain will ensure that the market is always provided with the raw materials necessary for producing circular fertilizers at a steady pace. Raising awareness for organic farming and the consumption of organic products are promising factors that can boost market acceptance. For commercialization to successfully take place a value proposition that is centered around environmental friendliness, circularity, and soil health has to be built, Moreover, negative perceptions related to circular fertilizers have to be dealt with. Education campaigns run by research institutes, state authorities, and universities can help tackle these negative perceptions.

As per the market uptake of circular fertilizers the case of struvite seems promising. Due to its low solubility, it can be used as a precision fertilizer which provides an advantageous element. Regarding compost marketability in the upcoming years, the focus should be located on demonstrating comparable results in terms of crop yield of compost to conventional non-renewable results. In addition, the European Commission is trying to unlock the market uptake of circular fertilizers from biowaste to wastewater sludge highlighting circularity, however, the environmental aspect of soil health has been deprioritized. As per digestate, a positive shift towards greater attention to the co-product's quality has been observed in recent years. Moreover, local administrations are seeking more case studies and good practices of circular fertilizers' value chains, from the collection of biowaste to the use of the produced end products in a local context. The latter will help in understanding and determining a business model and the positive environmental and social aspects e.g. related to soil health, yield, and substitution of chemical fertilizer while highlighting the value of circular fertilizers for different local players.

Disclaimer