



REALITY CHECK FOR CIRCULARITY

NEED FOR A REALITY CHECK ON THE FEASIBILITY OF CIRCULARITY IN THE FOOD SYSTEM

SHORT SUMMARY FOR PRACTITIONERS

EN version

Europe emphasises the importance of circular bio-based fertilisers for sustainable food systems. This is also reflected in the Farm to Fork Strategy, which calls for the urgent need to reduce nutrient losses to the environment. In this strategy, the European Commission also refers to the production of bio-based fertilisers as a 'largely untapped potential for farmers and their cooperatives'. Moreover, Europe has set an ambitious goal to drastically reduce the use of mineral fertilisers by 2030. Europe also stresses the need for a transition towards a circular economy, which includes a circular food system where waste generation is reduced and the potential of by-products is fully exploited.

Several European H2020 projects focus on bio-based fertilisers. The RUSTICA project demonstrates that circular bio-based fertilisers have the potential to be as effective as mineral fertilisers.

In this practice abstract, we highlight the key challenges that must be taken into account when developing circular bio-based fertilisers. We focus on three challenges to realize Europe's ambition. First, bio-based fertilisers have high production and transportation costs. Second, bio-based fertilisers may contain impurities and contaminants. Third, sustainable solutions in the bioeconomy are region-specific.

SHORT SUMMARY FOR PRACTITIONERS

NATIVE version

Europa benadrukt het belang van circulaire biogebaseerd meststoffen voor duurzame voedselsystemen. Dit komt ook tot uiting in de Farm to Fork-strategie, waarin wordt opgeroepen tot de noodzaak om het verlies van nutriënten te verminderen. In deze strategie verwijst de Europese Commissie ook naar de productie van 'biobased' meststoffen als een 'grotendeels onbenut potentieel voor boeren en hun coöperaties'. Bovendien heeft Europa zich een ambitieus doel gesteld om het gebruik van minerale meststoffen tegen 2030 drastisch te verminderen. Europa benadrukt ook de noodzaak van een overgang naar een circulaire economie, die een circulair voedselsysteem omvat waarin de afvalproductie wordt verminderd en het potentieel van bijproducten ten volle wordt benut.

Verschillende Europese H2020-projecten richten zich op biobased meststoffen. Het RUSTICA-project laat zien dat circulaire biobased meststoffen de potentie hebben om net zo effectief te zijn als minerale meststoffen.

In deze praktijksamenvatting belichten we de belangrijkste uitdagingen waarmee rekening moet worden gehouden bij het ontwikkelen van circulaire biobased meststoffen. We staan stil bij drie uitdagingen om de Europese ambitie te realiseren. Ten eerste hebben biogebaseerde meststoffen hoge productie- en transportkosten. Ten tweede kunnen biogebaseerde meststoffen onzuiverheden en verontreinigingen bevatten. Ten derde zijn duurzame oplossingen in de bio-economie regiospecifiek.

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CONTEXT

Several European H2020 projects focus on bio-based fertilisers. The RUSTICA project demonstrates that circular bio-based fertilisers have the potential to be as effective as mineral fertilisers. However, several logistic and economic obstacles explain the slow market uptake of circular biobased fertilisers.

PROBLEM

First, while the environmental impact of bio-based fertilisers is often lower compared to mineral fertilisers, their production costs are typically higher.

Second, circular bio-based fertilisers may contain impurities or contaminants. The key question is how to reconcile the possible presence of impurities and biotic or abiotic contaminants in residues or waste streams with the goal of reusing them in agricultural production systems. Impurities and contaminants do not necessarily represent an environmental or human health risk if concentrations remain below safe limits.

Finally, circularity ideally implies that the reuse or recycling of waste and residues is carried out at the regional level. Some solutions or technologies may be perfectly valid in one region but not necessarily feasible or sustainable in another.

APPROACH

For each of the obstacles, we analyse diverse solutions. We investigate Europe's strategy and ambition for circular biobased fertilisers and compare this strategy and ambition against the demonstrated potential.

OUTCOME

1. There is gap between policy ambitions and the current investments, regulation and support measures.
2. Sustainability is a very broad concept and needs to be unraveled to apply at the regional level.

PRACTICAL RECOMMENDATIONS

- ✓ Europe should align investment, regulation, and support with its ambitions as outlined in the Farm to Fork Strategy and the Green Deal. Economic and legislative obstacles hinder research and innovation aimed at developing more circular food systems. Opportunities for improvement lie not only in incentivising bio-based fertilisers, but also in harmonising guidelines, communication, and awareness-raising about circular food systems.
- ✓ Additionally, there is a need to decouple sustainability concepts to gain support for hybrid products and to recognise that different regional contexts require different solutions. Regional diversity significantly impacts agricultural production, making circularity more sustainable in some regions than in others.

