



Policy recommendation in the framework of EU-project SYSTEMIC

SYSTEMIC calls for harmonised EU regulations on the free trade of fertilising products to overcome innovation barriers and thereby stimulate a Circular Economy in the EU

Launched on the 1st of June, SYSTEMIC is a project that will demonstrate how it can be economically viable to recover and reuse and recycle nutrients from biowaste, animal manure and sewage sludge for agriculture. The project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730400.

With a consortium of 15 partners from 7 member states, SYSTEMIC recognizes Europe's challenge to tackle the increasing resource constraints and to facilitate the transition towards a circular economy (COM,2015-614). SYSTEMIC addresses these needs by identifying systemic innovation approaches to recover and recycle valuable mineral components and a range of organic fertilisers and organic soil improvers from organic waste streams and to integrate them optimally into a local or regional circular economy. This will be done through the effective combination of anaerobic digestion with novel nutrient recovery technologies for fertiliser production, the development of enhanced Circular Economy business models and the creation of a roadmap to facilitate circular economy options for biowaste, manure and sewage sludge in the EU.

The opportunities for recycling organic waste streams are enormous and the agricultural sector plays an indispensable role in this, with the high availability of manure, and other biomass from rural areas and from food and feed production. With innovative techniques that recover nutrients from animal manure and other biomass into fertilisers and a range of organic fertilisers and organic soil improvers, farmers are offered the opportunity to recycle nutrients and to use alternatives to conventional fertilisers tailored to the principles of the circular economy.

The marketing of these recovered mineral components will have a significant impact on the economic viability of nutrient recovery technologies and on the options available for creating a more circular economy. However, recovery technologies are not supported by the current EU Fertiliser Regulation which currently only includes inorganic fertilisers, leading to negative prices for products made from manure and other biomass. And yet, the new EU Fertiliser Regulation proposed in 2016 by the European Commission has been developed exactly to support a transition to the pursued circular economy. The proposal aims to stimulate the recovery of nutrients and carbon from wastes and residues in the production of fertilising products. But if the current proposal of this new European



legislative framework is to be effective in closing the nutrient cycles at different levels within EU, it needs to go a step further.

The Systemic consortium appeals for application of the New Legislative Framework¹ to fertilising products to improve market surveillance and boost the quality of conformity assessments, thereby improving quality and safety while also improving public perception. When these standards and those of the new fertiliser regulation are met, fertilising products should be treated on an equal basis between chemical fertilisers and fertilising products made from manure and biomass. Fertilising products destined for national markets which fulfil high standards should also be treated on an equal basis with chemical products.

Key message

The Systemic consortium advocates for harmonised EU regulations on the free trade of fertilising products:

- 1.** We recall that fertilising products derived from animal manure and biomass (according to Regulation (EC) No 1069/2009 and delegated Commission Regulation (EU) No 142/2011), have already been produced and traded for many decades within EU. National regulations are now in force. A provision (component material category CMC 11) is foreseen but is scheduled to become effective after implementation of the New Fertiliser Regulation. We advocate for a concurrent implementation of the list of CMC 11 (according to delegated Commission Regulation (EU) No 142/2011), including category 2-materials (art 9 of Regulation (EC) No 1069/2009) and category 3-materials (art 10 of Regulation (EC) No 1069/2009).
- 2.** ‘Secondary raw materials derived from manure or other biomass’ (for which the end point has been reached in accordance to Regulation (EC) No 1069/2009) are important resources for the production of fertilising products categorised as PFC 1(C) in the new Fertiliser Regulation. For example, nitrogenous fertilising products such as mineral concentrates, or phosphate and potash mineral fertilisers (f.e. struvite/other P-salts), can be derived from manure or biomass with valuable agronomic and chemical features as the current mineral fertilisers as they contain mainly, if not only, mineral nitrogen. Therefore, such mineral fertilisers should also be acknowledged as possible resources for PFC 1(C). Currently according to the new Fertiliser Regulation, PFC 1 (C) can only be derived from designated virgin material substances and mixtures. We advocate to extend this to CMC 11 materials and other relevant CMC’s to promote the use of renewable sources of nutrients.

¹ https://ec.europa.eu/growth/single-market/goods/new-legislative-framework_en



In addition, it should be clarified that ammonium sulfate/ammonium nitrate, obtained as end-product from the stripping/scrubbing¹ process of manure or other biomass, can be used as component material (CMC11) of CE market fertilizing products.

3. An alignment with the **Nitrates Directive** is needed as nitrogenous mineral fertilising products from manure are defined as manure (article 2(g)) and are not yet seen as mineral fertilisers. This is an unintended barrier which today hinders the innovation of the recovery techniques to produce high value nitrogenous fertiliser products with a high nitrogen use efficiency.

The SYSTEMIC consortium wants to stress the importance of removing this obstruction where the application of ‘processed manure’ is limited to levels below levels for chemical fertilisers, even if the recovered fertilising product, derived from manure is (agronomically and environmentally) not significantly different from a chemical fertiliser.

By removing these legal obstructions, the roll out of SYSTEMIC can be performed to its full potential and Europe can become a forerunner in the implementation of circular economy solutions for recovery of nutrients from manure and other biomass which will close the circle of nutrients in agriculture to their full ecological optimum.

² Background information: the technique of ammoniumstripping/-scrubbing is used in practice for processing of raw manure or digestate. By this technique, ammonia is removed (stripped) by blowing air through the liquid fraction of the slurry. The liquid stream flows in at the top while the air is blown in from the bottom. In this way, ammonia passes from the liquid to the gaseous phase. The strip gas, charged with ammonia, is then captured and the ammonia is removed by washing it with an acid solution, such as sulphuric or nitric acid, in the scrubbing system. This is the same system as it is used for cleaning air from pig stables. The reaction of ammonia (NH₃) with sulphuric acid (H₂SO₄) results in ammonium sulfate, or in the case nitric acid is used, the end product is ammonium nitrate. As this end-product is generated from gas/air, this does not contain any carbon and is a pure chemical product with high N-content and has no risk to human or animal health.