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Newsletter #4 - July 2022

Optimising bio-based fertilisers in agriculture –  
Providing a knowledge basis for new policies

Get to know us!

LEX4BIO aims to identify and quantify nutrient-rich side-streams and evaluates technologies for producing safe, efficient and regionally targeted bio-based fertilisers in the EU. LEX4BIO will provide policy recommendations for achieving a higher use efficiency of bio-based fertilisers and socioeconomic improvements for the rural population.

[Click here to discover our project objectives](#)

#### Word from Kari Ylivainio, LEX4BIO coordinator



Second year of field trials across the EU have started in the spring of 2022. During the first growing season in 2021 bio-based fertilizers, both nitrogen and phosphorus based, showed to have a great potential to replace mineral fertilizers in various growing conditions. During the coming growing season, field days will be arranged for stakeholders to observe agronomic efficiencies of bio-based fertilizers at a field level while the evaluation of their potential risks for food and feed safety, as well as potential environmental losses of nutrients, will continue.

Bio-based fertilizers contain organic, organo-mineral and mineral fertilisers. Utilization of these fertilizers is controlled by the Fertilising Products Regulation (2019/1009) that come into force in July 2022. **LEX4BIO** will evaluate bio-based fertilizers against this regulation and shall provide farmers information from various types of bio-based fertilizers and their suitability across different growing conditions in the EU. Furthermore, requirement of N and P for the optimal yield will also be evaluated in order to improve farmers' economy. Stay tuned for our social media channels for up-to-date information about the project's progress.

#### National Dissemination Forums of LEX4BIO resumed



##### National Dissemination Forum in Austria, June 22

The Austrian NDF took place on the 23rd of June 2022 at the University of Natural Resources and Life Sciences (BOKU), bringing 17 participants together in a hybrid in-presence – online meeting from research organisations, agriculture chambers, fertilizer industries, water and energy service providers, environmental consultants, and the Ministry of Agriculture.

The NDF was embedded in a "Nutrient Recycling" Seminar, where othersimilar projects like Systemic, ReCaP and Nutribudget were also presented. The program included an overview of Phosphorus-recycling projects in Austria, where the floor belonged to LEX4BIO.ReCaP – Capture, recycling and societal management of phosphorus in the environment, Systemic – Circular Solutions for Biowaste and Nutribudget followed by a more subject specific presentations on results from Lex4Bio regarding P-efficiency and LCA, business cases and LCA presentation from Systemic, perspectives for other nutrients such as N, K, B. The event was closed with a discussion on the presented topics and a visit to LEX4BIO field experiment site.

Continue reading - <https://www.lex4bio.eu/2022/07/20/national-dissemination-forum-in-austria/>

#### LEX4BIO VISIBILITY – Discover our dissemination activities



##### Open Day at the University of Hohenheim (UHOH)

LEX4BIO team from the University of Hohenheim presented the field experiment and the project in an exhibition stand with flyers, fertilizer samples, posters and guided tours during an Open Day held in the beginning of July.

Follow the link to see impressions of the day and get a feel for the activities:

<https://www.uni-hohenheim.de/en/open-day>

## LEX4BIO presented at Biorefine Conference in Ghent, Belgium

We are pleased to share that LEX4BIO Coordinator Kari Ylivainio presented the project at the first edition of 'The role of biorefineries in European agriculture' Conference organized by Biorefine Cluster Europe on 30 and 31 May in Ghent, Belgium. The event aims to highlight the current research innovations in the key domains of the sustainable resource management in the framework of circular economy systems. LEX4BIO project's presentation entitled 'Optimizing the use of bio-based fertilizers in crop production' provided a good overview of the project's overall objectives, work activities, objects of study as well as some of the effects of BBFs on crop production and soil parameters.



### Biorefine Conference



## Optimising the use of bio-based fertilisers in crop production

Kari Ylivainio



30 May 2022, Ghent

BIOREFINE  
09



## LEX4BIO at the WETSUS Phosphorus Symposium in Leeuwarden, The Netherlands

The WETSUS Phosphorus Symposium took place in May 2022 in Leeuwarden, The Netherlands, as part of the first training week for the young researchers of the ReCaP MSCA Innovative Training Network. During the symposium, experts from many EU countries gave presentations on phosphorus recovery, re-use and policy. Among them were also representatives of other EU projects such as P-TRAP (a similar network focusing on the interaction between iron and phosphorus) and LEX4BIO.

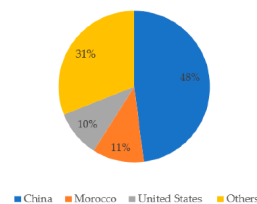
Ludwig Herrmann from Proman, who leads Work Package 6 in LEX4BIO, gave an overview of the general objectives of the project in his presentation "LEX4BIO – characterizing and optimizing bio-based fertilisers" (BBFs), and explained the concept, structure and expected results of the project. Dorette Müller-Stöver included in her presentation on "Bio-based phosphorus fertilizers – potentials and barriers" the first results of a pot experiment with 32 BBFs and wheat as a model plant, which was conducted by master student Nadine Abu Zahra in Jakob Santner's group at BOKU.

Continue reading: <https://www.lex4bio.eu/2022/05/>

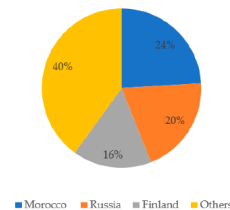
## SCIENTIFIC PUBLICATIONS BY LEX4BIO

### Transition to Circular Economy in the Fertilizer Sector—Analysis of Recommended Directions and End-Users' Perception of Waste-Based Products in Poland

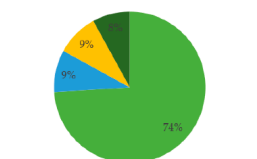
Main global producers of phosphate rock



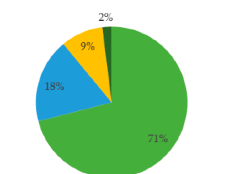
Main EU sourcing countries of phosphate rock



Main global producers of phosphorus



Main EU sourcing countries of phosphorus



A paper written by LEX4BIO partner Marzena Small, Mineral and Energy Economy Research Institute, Polish Academy of Sciences, as part of the Special Issue [Energy and Matter Recovery from Organic Waste Processing and Reuse](#)

It presents an analysis of recommended directions for the use of nutrient-rich waste in fertilizer sector and an evaluation of possible interest in this kind of fertilizer by a selected group of end-users (nurseries). The scope of

research includes the state-of-the-art analysis on circular aspects and recommended directions in the CE implementation in the fertilizer sector (with focus on sewage-based waste), and survey analysis on the potential interest of nurseries in the use of waste-based fertilizers in Poland. There are more and more recommendations for the use of waste for agriculture purposes at European and national levels. The waste-based products have to meet certain requirements in order to put such products on the market. Nurserymen are interested in contributing to the process of transformation towards the CE model in Poland; however, they are not fully convinced due to a lack of experience in the use of waste-based products and a lack of social acceptance and health risk in this regard. Further actions to build the social acceptance of waste-based fertilizers, and the education of end-users themselves in their application is required.

Read the full paper here <https://doi.org/10.3390/en14144312>

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### Presenting LEX4BIO to the Scientific Community

Our colleague Yan Dong from the University of Amsterdam made a poster presentation of LEX4BIO at 32<sup>nd</sup> Annual meeting of The Society of Environmental Toxicology and Chemistry (**SETAC**), held 15 – 19 May in Copenhagen. The title of the poster was "Simultaneous detection of pesticides and pharmaceuticals in three types of Bio-based fertilizers (BBFs) by QuEChERS-based extraction method and HPLC-QTOF/MS/MS".



**SETAC** is a global professional society providing a forum for individuals and institutions engaged in education, research and development, ecological risk assessment and life-cycle assessment, chemical manufacture and distribution, management and regulation of natural resources, and the study, analysis, and solution of environmental problems.

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### Where to meet us in September 2022?

**Lex4bio** will attend the **German Soil Science Society's** on-site Annual Conference, held in Trier, Germany, 5 - 8 September 2022.

We will present there the initial results of WP1 "Assessment of NRSS in the EU and their use as BBFs" with a poster entitled "Process factors affecting the contamination of struvite by selected antibiotics".

More about the event: <https://www.dbgs.de/en/Trier2022>

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### Networking as a key to maximise LEX4BIO impacts

Since the beginning of the LEX4BIO project, networking activities have been undertaken to ensure cross-cooperation with relevant projects and clusters at EU scale. We are glad to have joined forces with SUSFERT – a EU project developing new bio-based fertilisers to reduce dependency on unsustainable phosphorus (P) imports into the EU using struvite as a renewable source of P.



[Read more.](#)

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**LEX4BIO is online:** From its outset, LEX4BIO project has been benefiting from a large on-line visibility. The website dedicated to the project was launched in November 2019 to provide publicly accessible information on project's goals and objectives, work activities progress and results. Over the entire duration of LEX4BIO, you will be able to download directly from our web platform, **all public deliverables and outcomes** LEX4BIO accomplished.



Follow us on social media. Visit our website.

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You are receiving this e-mail as you are part of the LEX4BIO community!

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