

Newsletter #7 | December 2023



**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 regularly 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](#)

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### Word from Kari Ylivainio, LEX4BIO coordinator

Welcome to next to the last newsletter of LEX4BIO!

The past six months have been busy time for evaluating the data collected and preparing both deliverables and scientific articles from the project's outcomes. The second review meeting in September further showed that we are on a right track and all activities have been conducted on time.


Now LEX4BIO has reached its final phase where the main emphasis is on disseminating the results to various stakeholders. Field, greenhouse and laboratory trials have provided new information about the potential of bio-based fertilisers (BBF) to substitute mineral fertilizers in various climatic and soil conditions across the EU. From the consumer point of view, potential effect on food and human safety has been evaluated, along with the potential environmental losses of both phosphorus and nitrogen. Conclusions will be collected and condensed to policy recommendations to enhance the use of BBFs and replace the use of mineral fertilizers and support circular economy in the EU.

Results of LEX4BIO will be presented both at national and international dissemination events in 2024. The final international events for dissemination take place during the ManureSource conference in March in Brussels, Belgium and Nutrients in Europe Research Meeting (NERM) 2024 in Brussels in April.

By following us on social media, including LEX4BIO's webpage [www.lex4bio.eu](http://www.lex4bio.eu), you will stay up to date with our final events and publications.

### NATIONAL DISSEMINATION FORUMS

With weather warming up and days growing longer, LEX4BIO partners started organizing planned field days. The idea behind these events is to demonstrate to interested stakeholders the potential of bio-based fertilizers for agriculture. Two field days were conducted in May.



[Follow the link to discover more about the final LEX4BIO NDF in Denmark](https://lex4bio.eu/2023/07/06/lex4bio-final-national-dissemination-forum-ndf-in-denmark/)


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### RESULTS

**Second Press Release is out**

**For Immediate Release to Media From LEX4BIO Project**  
July 4, 2023

by [Sanna Järvelin](#) / Jul 4, 2023 / News & Event



**BIO-BASED FERTILIZERS DERIVED FROM VARIOUS NUTRIENT-RICH SIDE STREAMS HAVE POTENTIAL TO EFFICIENTLY AND SAFELY REPLACE MINERAL FERTILIZERS**

**LEX4BIO RESULTS PUBLISHED**


Food security in Europe is strongly related to reducing the continent's dependency on imported fossil fertilizers, the production of which harms the environment with the use of scarce non-renewable resources and high energy consumption. The extensive laboratory and field trial experiments conducted by LEX4BIO's soil scientists demonstrate that bio-based fertilizers can be an attainable alternative to conventional mineral fertilizers and can contribute to reaching the ambitious goals of the EU Green Deal and Farm to Fork strategy as well as improve Europe's self-sufficiency in food production.

Nitrogen (N) and phosphorus (P) are vital nutrients for crop production and therefore increasing their demand in Europe across varying soil and climatic conditions is considered a key output of LEX4BIO project and an essential enabler for the better utilization of BBFs from environmental and economic point of view.

The full press release can be downloaded from [here](#).

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### Second Review Meeting



# REVIEW meeting

In September, LEX4BIO had its second Review Meeting online and we were pleased to hear the positive evaluation given to the consortium's work by both the Project Officer and the reviewing expert.

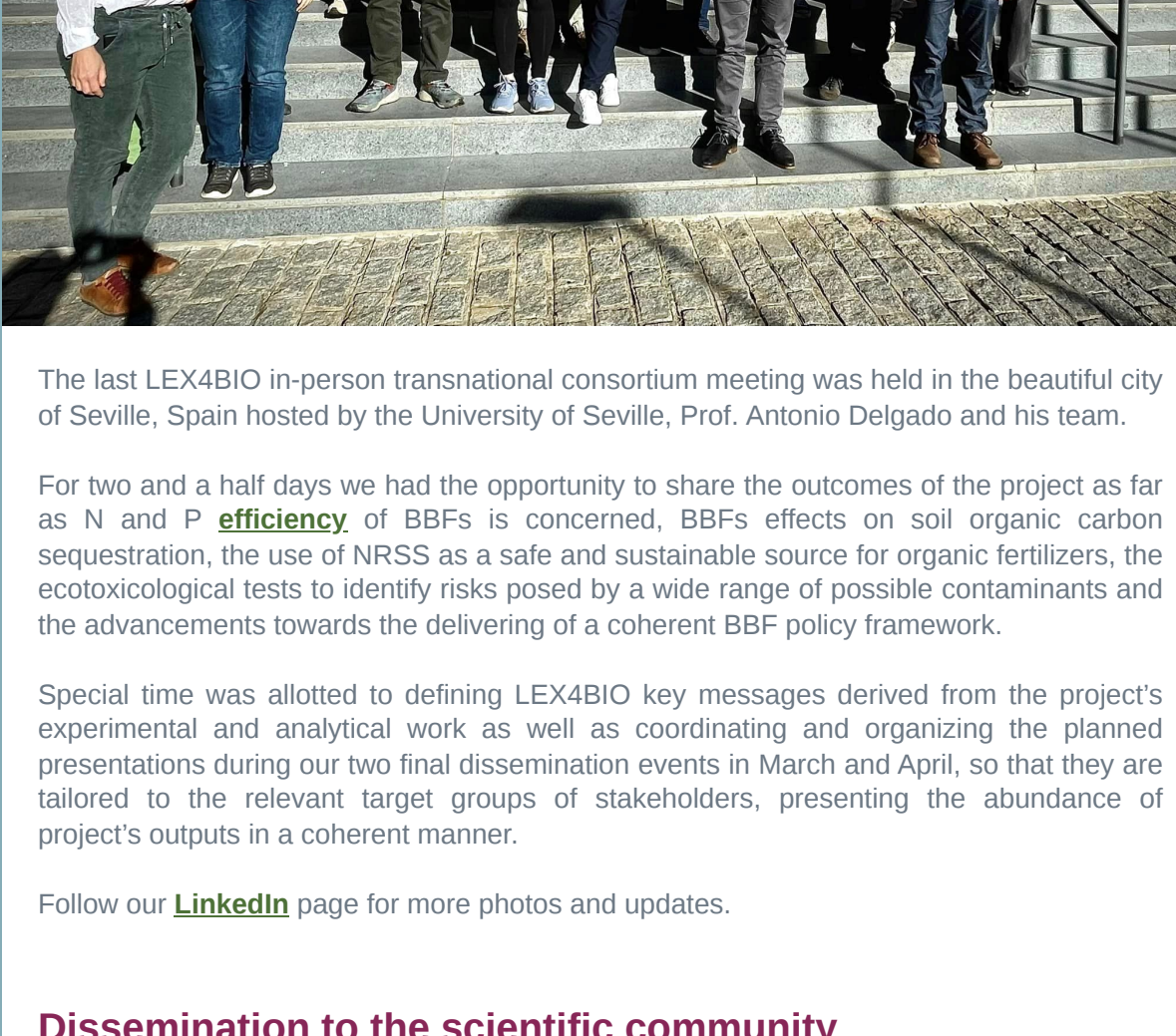
Given the complexity of the project, the impediments faced during the Covid-19 pandemic and the unpredictability of climatic conditions, which directly affect the results of the field trials, we cannot but consider this an outstanding achievement made possible thanks to the absolute dedication of all partners and their concrete efforts in working towards the accomplishment of the project's goals and objectives.

Project's deliverables were assessed as being of high quality, expected to have a significant impact on our knowledge about bio-based fertilizers (BBF) in agriculture – their benefits, limitations and potential risks, how to enhance their utilization and what advantages they can potentially bring to stakeholders involved in work resulting in the production of organic waste or other nutrient-rich side streams (NRS).

We commit to keep the hard work going and present final results during ManureSource conference in March and NERM 2024 in April that will contribute to advancing the circular bio-economy and preserving European soils healthy and fertile.

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### Last in-person Consortium Meeting in Seville



The last LEX4BIO in-person transnational consortium meeting was held in the beautiful city of Seville, Spain hosted by the University of Seville, Prof. Antonio Delgado and his team.

For two and a half days we had the opportunity to share the outcomes of the project as far as we can in an **efficiency** of efforts is concerned. BBFs effects on soil organic carbon sequestration, the use of NRS as a safe and sustainable source for organic fertilizers, the ecotoxicological tests to identify risks posed by a wider range of possible contaminants and the advancements towards the delivering of a coherent BBF policy framework.

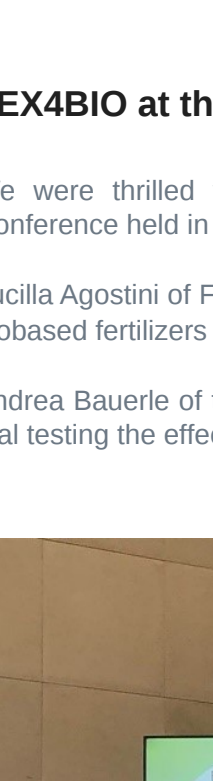
Special time was allotted to defining LEX4BIO key messages derived from the project's experimental and analytical work as well as coordinating and organizing the planned presentations during our two final dissemination events in March and April, so that they are tailored to the relevant target groups of stakeholders, presenting the abundance of our project's outputs in a coherent manner.

Follow our [LinkedIn](#) page for more photos and updates.

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### Dissemination to the scientific community

#### LEX4BIO presented at the fifth edition of the Wageningen Soil Conference, the Netherlands



## wageningen soil conference

— Working together on solutions for a sustainable world —

From August 29 to September 1, 2023, the Dutch **Wageningen University** hosted the fifth edition of the Wageningen Soil Conference – an international scientific conference gathering an audience of many scientists but also subject matter experts from research institutes and Dutch government agencies.

LEX4BIO partner Dr. Boris Jansen, University of Amsterdam attended the event and presented work from work package 5 dedicated to the risk assessment of the application of bio-based fertilizers (BBF). His presentation entitled "Advanced screening methods for potential soil pollution introduced via bio-based fertilizers" featured results from the screening of 13 low-risk commercial BBFs for pollutants in two field trial soils, from Finland and Spain respectively, for pollution after BBFs application.

[Continue reading](#)

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#### LEX4BIO at the RAMIRAN 2023 CONFERENCE

We were thrilled with the opportunity to present project results at RAMIRAN 2023 Conference held in Cambridge, 12 – 14 September.

Luchia Agostini of FiBL presented interesting N bioavailability results for a selection of novel bio-based fertilizers (BBF) that have been investigated in W94.

Andrea Bauerle of the University of Hohenheim reported on results obtained from the field trial testing the effect of bio-based fertilizers and different soil tillage on yield of barley.

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#### German Soil Science Society Annual Conference

For a second consecutive year, Dr. Elke Bloem from Julius Kühn-Institut (JKI), the German Federal Research Centre for Cultivated Plants attended the German Soil Science Society's Annual Conference, held in Halle beginning of September. She presented a poster with results from the field research work of LEX4BIO with a poster entitled "Organische Dünger im Praxisversuch: Erkenntnisse aus den ersten 3 Jahren (Organic fertilizers in the field test – results from the first 3 years)".

[Read more](#)

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#### International Fertiliser Society Conference, UK

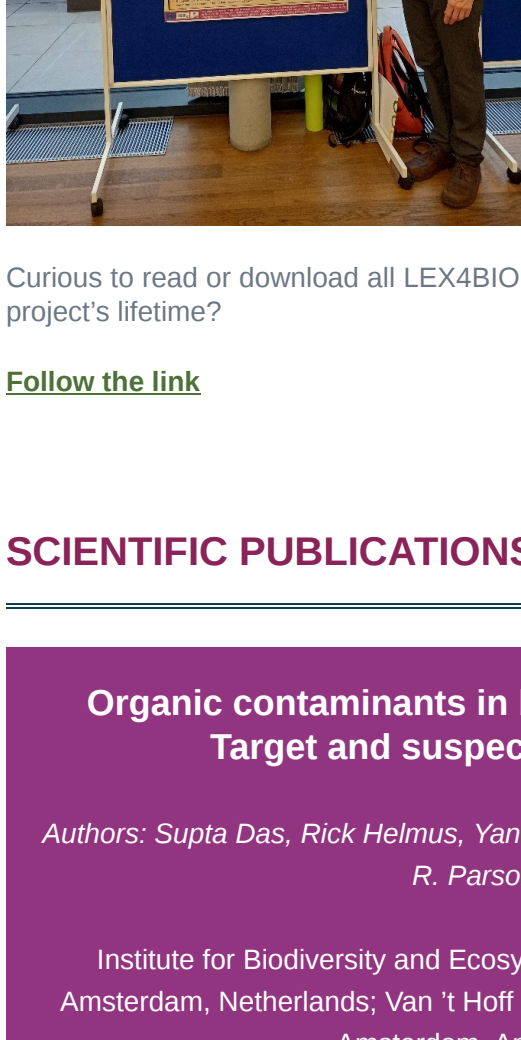
A scientific poster, output from work package 4, titled "Evaluating the Performance of Bio-based Nitrogen Fertilizers using Dynamic Modelling", was presented at the International Fertiliser Society's 2023 Conference held in the United Kingdom, 6 – 8 December.

We are proud that the poster first-authored by Muhammad Adli Rashid was among the top 10 finalists running up for the 2023 Brian Chambers International Award for Early Career Researchers in Crop Nutrition.

[Read more](#)

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#### Austrian Bioeconomy Summit 2023



LEX4BIO partner Dr. Olivier Duboc from the University of Natural Resources and Life Sciences, Vienna (BOKU), presented a scientific poster titled "Potential of recycled phosphorus fertilizers", at the Bioeconomy Austria Summit held in November in St. Pölten.

The event positions itself as the central gateway to the Austrian bioeconomy represented by a dynamic network of more than 250 organizations from regional clusters and platforms, economic actors, research institutions and political and social groups.

[Read more](#)

Curious to read or download all LEX4BIO posters presented at conferences throughout the project's lifetime?

[Follow the link](#)

### SCIENTIFIC PUBLICATIONS BY LEX4BIO

**Organic contaminants in bio-based fertilizer treated soil: Target and suspect screening approaches**

*Authors:* Susta Das, Rick Hermans, Yan Dong, Shweta Bhatia, Antonia Praetorius, John R. Parsons, Boris Jansen

*Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Amsterdam, Netherlands; Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, Amsterdam, Netherlands*

[Follow the link to read the full paper published in Chemosphere](https://doi.org/10.1016/j.chemosphere.2023.139261)  
<https://doi.org/10.1016/j.chemosphere.2023.139261>

**Simultaneous detection of pesticides and pharmaceuticals in three types of bio-based fertilizers by an improved QuEChERS method coupled with UHPLC-q-ToF-MS/MS**

*Authors:* Yan Dong, Susta Das, John R. Parsons, Antonia Praetorius, Eva de Rijck, Rick Hermans, J. Chris Stoobvogel, Boris Jansen

*Institute for Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam, the Netherlands; Van 't Hoff Institute for Molecular Sciences, University of Amsterdam, Amsterdam, PO Box 94157, 1090 GD Amsterdam, the Netherlands*

[Follow the link to the full publication](https://doi.org/10.1016/j.jchromsup.2023.100022)  
<https://doi.org/10.1016/j.jchromsup.2023.100022>

### LEX4BIO in the spotlight



In August, the Finnish newspaper **Turun Sanomat** dealing with the topic of how to reduce the loads of **phosphorus** from agricultural **fertilization** to the Baltic Sea published an article featuring LEX4BIO project.

We were pleased that our results were mentioned in the context of the European farmed lands' needs of phosphorus fertilization and the additional information it produces about the most suitable recycled fertilizers for each region, depending on soil characteristics, to ensure food safety.

Enjoy reading the article in Finnish <https://www.tuusa.fi/luke/huoneisto/06088213>

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### Where to find us?

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### LEX4BIO FINAL EVENTS



**NERM 2024**  
(Nutrients in Europe Research Meeting)

16-17 April 2024  
Brussels & hybrid



**SOFIE Europe**  
3rd summit

16-17 January 2024  
Brussels & hybrid

**FINAL EVENT for LEX4BIO project**

*Towards closing nutrient cycles for a sustainable future, from R&D to implementation*

LEX4BIO Consortium is pleased to invite you to its final event – NERM 2024 (Nutrients in Europe Research Meeting) which will take place in Brussels and online, 16 – 17 April 2024.

The event is dedicated to closing nutrient cycles for a sustainable future - from Research and Development to implementation. It will additionally comprise research students meeting on April 15 and site visits to Fertilizanture and Walnut nutrient recovery facilities on the afternoon of April 17.

NERM is jointly organised by ESPP, LEX4BIO and other Horizon 2020 projects like FERTIMANURE, Rustica EU Project, SEA2LAND H2020-EU, WAI/NG and BioRefine Cluster Europe.

What shall NERM cover:

- key outcomes of recent nutrient recycling R&D under Horizon 2020, LIFE, Interreg and other funding programmes;
- roadmap for future nutrient recycling R&D needs
- nutrient recovery technologies and recycled fertiliser production
- quality application and use; stakeholders acceptance or secondary fertilizers from nutrient recovery to markets

Studying any of these topics and would like to present your results through an oral presentation or a poster?

Check out the preliminary programme of the event. We look forward to seeing you and your colleagues there.

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A month earlier, in March, LEX4BIO, in cooperation with sister FERTIMANURE project, will present project's outputs to the scientific community, actors involved in manure management and policy makers at the **ManureSource 2024** Conference.



**ManureSource 2024**  
International conference on manure management and valorization

MARCH 20 – 21 – (22)  
Antwerp, Belgium

[www.manuresource.org](http://www.manuresource.org)

LEX4BIO will organize two parallel sessions of four presentations under the following topics:

- Agronomic performance of bio-based fertilizers and their potential to replace mineral fertilizers in the EU
- Stakeholders' acceptance and potential effects of bio-based fertilizers on the environment, food safety and health

The deadline for abstract submissions is 15 January 2024.

Registration is open! <https://registrations.vcm-mestwerkkring.be/en/events>

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### AND MORE ...



**SOFIE Europe**  
3rd summit

16-17 January 2024  
Brussels & hybrid

Right with the start of the New Year, LEX4BIO partners are going to Brussels to attend the 3<sup>rd</sup> Summit of the Organic and Organo-mineral Fertilisers Industries in Europe (SOFIE3) as our focus will be the agronomic efficiency of organic fertilizers in various growing conditions in Europe.

Back to back with SOFIE3, on January 18, the European Sustainable Phosphorus Platform (ESPP) is organizing a meeting on Defining "Bio-Based Fertilisers" and PFR "solely biological origin".

The meeting will bring together the European Commission, industry and fertilisers associations, research projects and stakeholders to discuss sustainable business, the relevance of bio-based definitions for markets and policy making

- existing official bio-based vocabulary (CEN, ISO, ASTM, plastics sector, industry labels)
- what comparable methodologies could be applied to recycled nutrients in fertilisers and in other applications?
- possible coherence with the EU Fertilising Products Regulation terminology "of solely biological origin"
- proposed joint position and discussion of next steps, possible input to policy makers, to CEN.

Check the Programme [here](#).

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### Networking as key to maximising LEX4BIO impact

Since the beginning of LEX4BIO project, networking activities have been undertaken to ensure cross-cooperation with relevant projects and clusters at EU scale.

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### LEX4BIO represented by coordinator Kari Ylivainio (LUKE) at ESNi



The European Sustainable Nutrient Initiative (ESNi) Conference, launched by the Bioeconomy Cluster Europe (BCE) in 2019 brings together EU projects, stakeholders and EU officials with the ambition to keep nutrient management high on the EU agenda.

The ESNi community is a successor of the Nutrient Recycling Community, comprising 4 Working groups led by European projects and addressing topics relevant with an impact on the nutrient recycling and recovery. At present, the following working groups are active:

- Technologies for nutrient recycling coordinated by FERTIMANURE;
- Agronomic performance of fertilising products coordinated by LEX4BIO;
- Sustainability assessment coordinated by NOVAFERT;
- Policy coordinated first by NUTRIZCYCLE and currently led by RENUZCYCLE

In September 2023, Brussels hosted the **4th European Sustainable Nutrient Initiative (ESNi) Conference**, Brussels hosted the 4th European Sustainable Nutrient Initiative (ESNi) Conference, attended by more than 170 people with various backgrounds, to include researchers, stakeholders and policy makers, to discuss sustainable business.

The event started with insightful presentations by representatives of the European Commission, addressing nutrient recycling, PFR, and Mission Soil. Discussions then moved into emerging nutrient recycling technologies, examined policy and stakeholder viewpoints, all aimed at facilitating the introduction of recycled nutrient products into the market.

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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 and progress. 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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