D3.4. Preliminary outcomes from the co-creation processes

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

Deliverable Information Sheet

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Project Acronym	FER-PLAY
Project Title	Multi-assessment of circular FERtilisers for Promoting Local sustainable value chains And clean ecosYstems
Project Call	HORIZON-CL6-2021-ZEROPOLLUTION-01
Project Duration	September 2022 – February 2025 (30 months)
Deliverable Number	D3.4
Deliverable Title	Preliminary outcomes from the co-creation processes
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Observations	Events signing list can be made available to the EC upon request

List of Acronyms

CSA	Community-supported agriculture
PA	Public Administration
PAS	Programmatische Aanpak Stikstof
RDF	Recycled Derived Fertilisers

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Keywords list

- Co-creation
- Circular fertilisers
- Resource efficiency
- Circular fertilisers value chains
- Agriculture, life cycle assessment
- Sewage sludge
- Bio-waste
- Organic by-products
- Wastewater

Disclaimer

Table of Contents

Executive summary

FER-PLAY is working to protect ecosystems, decrease EU dependence on fertiliser imports, and improve resource efficiency through the promotion of circular fertilisers. The project maps and assesses circular fertilisers made from secondary raw materials and highlight their multiple benefits to foster their wide-scale production and application.

The project work plan foresaw a dedicated Work Package to gather first-hand perspectives of key stakeholders regarding barriers and opportunities for circular fertilisers deployment following a co-creation approach. Relevant stakeholders representing mainly the three target groups (end-users, producers and local administrations) and describing a variety of EU countries perspectives, were involved into discussions with the main scope of feeding FER-PLAY with a wider range of viewpoints that covered real needs and that were reflected on the main outcomes of the project: the assessment of impacts and trade-offs of the selected value-chains (resulting from WP2 “Multi-assessment of impacts, trade-offs and framework conditions of selected alternative fertiliser value chains”), the tailor-made guidelines (resulting from WP3) and the awareness-rising activities (part of WP4 “Dissemination, exploitation and communication”).

Deliverable D3.4 collects the outcomes from these co-creation discussions carried out from March 2023 to October 2024. The main concerns coming from the 36 events organised by partners that have gathered a total of 1570 participants in co-creation debates can be summarised in the following points:

- The high interest for diversifying the fertilisers commonly used expressed by the end-users (agriculture sector) is hindered by the lack of knowledge on the agronomic and economic benefits of circular fertilisers shown not only by the farmers but also by their regular technical advisors. This makes that well-known synthetic fertilisers are the first choice for conventional farmers.

- The producers sector reflects the necessity of overcoming social acceptance mistrust and making the production cost-effective. The figure of a technical advisor inside the staff of the circular fertiliser producer company becomes crucial in this sense to improve the relationship with the end-user.

- Clarification on regulatory barriers (at local and European level) are highly required to unlock the market potential for circular fertilisers.

All details from the different events and the main outcomes gathered in each of them can be found in this document with a final summary inside the conclusions.

1. Introduction

FER-PLAY is a Horizon Europe project facilitating the uptake of circular fertilisers, to protect ecosystems, decrease EU dependence on fertiliser imports, foster circularity and improve soil health. The project objective is to map and assess circular fertilisers made from waste, by-products and wastewater and to highlight their multiple benefits in order to promote their wide-scale production and use on field.

The wider use of circular fertilisers that are already marketable, like the seven ones analysed in detail within the project, is currently hindered due to several reasons. Firstly, there is little awareness among end-users about the potential that they offer to partially/totally substitute synthetic fertilisers. Their availability, their composition and the way of distribution on the fields, together with their economic and agronomic benefits, are aspects that are mostly unknown by the agriculture sector. Secondly, the producers of these circular fertilisers suffer in many cases from the uncertainty on the regulatory framework and do not always have a clear market strategy towards the end-users sector. Thirdly, the public administrations are not fully concerned about the potential that this new market can develop in their territory at environmental, economic and social level.

FER-PLAY foresaw an important effort to understand the different perspectives of these three stakeholder groups (end-users, producers and public administration) as to address their main concerns in specific guidelines elaborated by the project for each target group, as well as for the detailed analysis on the impacts and opportunities at economic, regulatory, social and environmental level that the project conducted (available on the project website). To this aim, a specific Work Package was dedicated to cover these discussions and the approach selected as most suitable was to follow co-creation principles, meaning to systematically share, mobilise and activate knowledge[1]. The social acceptance of circular fertilisers, a key point that is hindering the market, was assessed through surveys discussed and disseminated during these events. Last but not least, the feedback gathered through these activities have also served as input for appropriate messages within the dissemination activities, guaranteeing a maximum impact.

The following Table 1 summarises the main co-creation role assigned by the project to the three groups targeted within the activities, whereas the Table 2 includes the main specific objectives expected to be achieved.

[1] Triste, L. September 2018. Communities of practice for knowledge co-creation on sustainable dairy farming.

Table 1. Co-creation role assigned to each group targeted within FER-PLAY project

Group	Co-creation role
Fertiliser producers	Provide perspectives on: - existing value chains e.g., availability, characteristics, logistics; - technical, economic, and commercial conditions that may impact the manufacturing and market deployment of the circular fertilisers; - on end-users' perceptions from their point of view.
Fertiliser end-users	Provide perspectives on existing local value chains and main concerns/ drivers on the use of circular fertilisers, including agronomic performance and regulatory uncertainty. Provide information on real cases successful in the reduction of conventional fertilisers. Propose financing models to support farmers in their transition to circular fertilisers.
Local administration and policy makers	Provide perspectives on current policy and institutional obstacles for the deployment of the value chains and foreseen orientation of policies in the mid- and long-term.

Table 2. Specific objectives foreseen for the co-creation activities

Target group	Achievement indicator	Value
Fertiliser end-user	N. surveys collected	150
Fertiliser producer	N. producers involved	120
Local administration/policy makers	N. administrators involved	30

The co-creation activities were carried out inside events of diverse typology (in presence/online, workshops/seminars/focus groups) which were organised by the different partners involved in the devoted WP, whereas the overall coordination was done by CIC. As to foster networking and the sharing of knowledge, some of the events were organised together with other EU/national/local funded projects/platform/initiatives.

This document provides the main outcomes resulting from the **36 co-creation events** carried out up to date (from March 2023 to October 2024, against 27 activities expected by Sep. 24), that have involved a total of **1570 participants** into discussions (998 of them representing the 3 target groups) and that have **network with 17 EU/national/regional/local funded projects/platforms/initiatives**.

The following sections include all the details of each event (some, like the agenda, might be in the national language of the hosting country) together with a summary of the discussion and the main conclusions to be taken into consideration for the rest of FER-PLAY activities.

In compliance with the ethical principles and relevant legislations, personal data (such as name, email address, organisation, target group; never sensitive information) has been collected to the

people participating in the co-creation activities with a previous informed consent. This information is subject of confidentially and handled in line with the General Data Protection Regulation (2016/679/EU) – the process overseen by FER-PLAY Open Science and Data Manager, David Fernández from CETENMA.

2. Co-creation events with end-users

The agriculture sector is one of the three stakeholders group targeted by FER-PLAY project. Within the project co-creation events dedicated to farmers and conducted by partners representative of the sector (ASAJA, COLDIRETTI, INAGRO and NATURLAND), the project has fostered the discussions on the agronomic and economic value of these circular fertilisers.

The following table provides the main data related to the commitments from these events and the achievements obtained.

Table 3. Commitments linked to the co-creation activities dedicated to circular fertiliser end-users

Commitment targeting the end-users	Achieved value
150 surveys on social acceptance collected	360
12 events	18
600 participants (farmers and technicians)	590
Number of participants to the events from the 3 target groups	651
Total number of participants to the events (including those beyond targeted stakeholders)	794

Thanks to these co-creation activities, valuable inputs have been received and considered in the guidelines elaborated by the project (D3.1 “Guidelines for fertiliser end-users”) focusing on the final user. The main important message to be highlighted is that the high interest for diversifying the fertilisers commonly used expressed by the agriculture sector is hindered by the lack of knowledge shown not only by the farmers but also by the advisors. This makes that well-known synthetic fertilisers are the main choice for conventional farmers. In particular, the main issues are:

- Availability of circular fertilisers at local level is not clear.
- There is a lack of knowledge on their chemical composition and how to be distributed on the soil (dose, timing and machinery for the different crops).
- The end-users are not well-informed about the agronomic and economic benefits that the application of circular fertilisers mean.

As reported in the previous table, a total of 18 events with end-users (some in presence and some online) have been celebrated from March 2023 till October 2024, gathering 590 participants representing the agriculture sector). The following sections detail the events features and main outcomes resulting from each of them. Agendas and event-related information were created in local languages, to avoid language barriers and foster the participation of local stakeholders.

2.1. Event with end-users from Spain (30/05/2023)

Table 4. Event Main Features (Workshop in Spain on 30/05/2023)

Responsible partner:	ASAJA
Target public:	Farmers
Type of event:	Workshop
Modality:	Presential
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY Dedicated Event
Main scope:	Farmers Training
Location (Country acronym):	Madrid (ES)
Date (dd/mm/yyyy):	30/05/2023
Duration (hours):	2 hours
Impact:	30 participants (30 farmers+technicians)

On 30/05/2023, ASAJA held a workshop dedicated to fertilisation, during which the three of the best valued circular fertilisers selected to be further assessed within the framework of FER-PLAY project were presented.

In the following Figure 1, the Agenda of the Event is displayed.

Figure 1. Agenda of the workshop on 30/05/2023 in Spain

In Figure 2, displayed below, some of the photos taken during the Event on 30/05/2023 in Spain are shown.

Figure 2. Photos from the workshop on 30/05/2023 in Spain

2.1.1. SUMMARY OF THE DISCUSSION

Two main speakers participated in the workshop held on 30/05/2023 in Spain. The first of them was Jose Antonio Sotomayor, technical director of a company dedicated to the commercialisation of fertilisers, who came to present a new fertiliser product of mineral origin. He also explained the current situation of fertilisation in Spain, indicating the scarcity of circulars of fertiliser products that agricultural producers have when they need to select fertiliser products to add nutrients to their plantations, and the scarcity of circulars to the use of synthetic chemicals.

The second of them was Manuel Lucena Marcos, a technician from the ASAJA Innovation Department, who presented three of the fertilisers that have been selected in FER-PLAY (struvite, spent mushroom substrate and compost of vegetable and food remains) to undergo further assessment on their impacts. Participants showed special interest on struvite, a not well-known fertiliser in Spain. This interest is stimulated by the prohibition of the use of phosphate salts in Spain, which currently can be used only in the Netherlands, Belgium, Germany, France, Denmark and in the United Kingdom.

2.1.2. RELEVANT OUTCOMES FOR THE PROJECT

Three of the best valued circular fertilisers were presented and described, causing an enormous interest of the participants of the event.

The farmers attending the event presented the following difficulties connected to the actual situation: the difficulty to find circular fertilisers at the moment of necessity and the high transportation costs, due to the enormous volume required in comparison to synthetic fertilisers.

In their opinion, the use of circular fertilisers coming from manure or other organic by-products, is only feasible in case of the closeness to the producers of these fertilisers.

2.2. Event with end-users from Germany (06/06/2023)

Table 5. Event Main Features (Workshop in Germany on 06/06/2023)

Responsible partner:	NATURLAND
Target public:	Farmers, advisers
Type of event:	Workshop
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Joint event with German BÖL project ProBio
Main scope:	Compost
Location (Country acronym):	Jesewitz (DE)
Date (dd/mm/yyyy):	06/06/2023
Duration (hours):	6 hours
Impact:	11 participants (11 farmers+technicians)

The event entitled "The potential of compost in organic farming - ProBio and FER-PLAY event" was held on 06/06/2023. The event was organised in cooperation with ProBio, which is a German funded project dealing with compost use for organic farming.

The agenda of the Event is shown in the following Figure 3.

Figure 3. Agenda of the workshop on 06/06/2023 in Germany

NATURLAND INFORMATION

Naturland

„Das Potenzial von Kompost im Ökolandbau - ProBio und FER-PLAY Veranstaltung"

Sehr geehrte Naturland Mitglieder,
Liebe Bäuerinnen, liebe Bauern,

wir laden Sie herzlich zu unserer Infoveranstaltung am
06.06.2023 von 8:45 bis 15:00 Uhr ein.

Treffpunkt: Rösl Kompost- und Erdenwerk, Zschettgauer Str. 3, 04838 Jesewitz
Kosten: 10 € p. P. für Essen und Getränke

Thema:

Im Projekt ProBio (Untersuchungen zur optimalen Produktion und pflanzlichen Verwertung von Biogut- und Grüngutkompost im ökologischen Landbau) wird die Wirkung und das Einsatzpotenzial von Komposten aus dem Kompostwerk im ökologischen Landbau mithilfe von Feld- und Praxisversuchen untersucht. Komposte stellen gerade auf viehlosen und vieharmen Betrieben eine wertvolle Nährstoffquelle für den ökologischen Landbau dar, werden jedoch häufig aufgrund von Vorbehalten oder logistischen Hemmnissen nicht eingesetzt. Diese Veranstaltung soll interessierte Landwirt:innen informieren, die Gelegenheit zum Austausch mit der Kompostbranche und Berufskolleg:innen bieten und den Einsatz von Kompost in der Öko-Landwirtschaft fördern. Das EU-Projekt FER-PLAY, das sich mit der Förderung alternativer organischer Düngemittel befasst, wird ebenfalls im Rahmen der Veranstaltung vorgestellt.

Programm:

Uhrzeit			Referent:in
08:45 – 9:00	Ankommen, Begrüßung und Vorstellung	Rösl Kompost- und Erdenwerk, Zschettgauer Str. 3 04838 Jesewitz, OT Liemehna Link in Google Maps	Annemarie Ohlwärter (Naturland)
9:00 – 11:30	Besichtigung der Kompostierungsanlage		Stephan Lehmann (Firma Rösl, Leiter

Öko-BeratungsGesellschaft mbH | Eichethof 1 | 85411 Hohenkammer
Tel. 08137 / 6372 -902 | Fax 08137 / 6372 -919 | info@naturland-beratung.de | www.naturland-beratung.de
Bankverbindung: Sparkasse Dachau | SWIFT: BYLADEM1DAH | IBAN: DE62700515400000664912
Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München |
Geschäftsführer: Martin Bär

NATURLAND INFORMATION

Naturland

			Natur- und Umweltschutz)
11:30 - 12:30	Fahrt zum Gemeinde-haus Liemehna (ca. 3 km), gemeinsamer Mittagsimbiss	Gemeindezentrum Liemehna, Am Anger 9a, 04838 Jesewitz, OT Liemehna Link in Google Maps	
12:30 – 13:00	Vorstellung der Ergebnisse zur Kompostwirkung aus dem Projekt ProBio, Informationen zu Verbandsrichtlinien beim Komposteinsatz		Annemarie Ohlwärter (Naturland)
13:00 - 13:30	Vorstellung des FER-PLAY Projekts		Ramona Kinder (Naturland)
13:30 - 14:00	Kompostanwendung in der Praxis, Düngewirkung und rechtliche Rahmenbedingungen		Nikolas Zöller (Institut für Abfallwirtschaft und Sekundärrohstoffe)
14:00 – 14:30	Kompostanwendung im Betrieb - Praktikervortrag		angefragt
14:30 – ca. 15:00	Abschlussdiskussion, Ende der Veranstaltung		Moderation: Annemarie Ohlwärter

Anmeldung bitte bis 02.06.2023 über die Naturland App oder auf unserer Homepage unter Veranstaltungen für Erzeuger (naturland.de) direkt in der Terminansicht.

Bei weiteren Fragen zur Veranstaltung melden Sie sich gerne bei Annemarie Ohlwärter, Tel: 015165905190

Wir freuen uns auf Ihre Teilnahme!

Ihre Beratung für Naturland und die ProBio-Projektpartner

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Gefördert durch
Bundesministerium für Ernährung und Landwirtschaft
aufgrund eines Beschlusses des Deutschen Bundestages
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Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München |
Geschäftsführer: Martin Bär

In Figure 4 some photos taken during different stages of the workshop are presented.

Figure 4. Photos from the workshop on 06/06/2023 in Germany

2.2.1. SUMMARY OF THE DISCUSSION

The event included a field visit to a compost plant, and after the visit the following issues were discussed during the workshop:

- Presentation of the results on the compost effect.
- Information on standards and guidelines for compost use (EU organic standards and private standards).
- Compost application in practice, fertilising effect and legal framework conditions (fertiliser regulations).
- Presentation of FER-PLAY project and opportunities for farmers and producers.

The group of participants was small, enabling an intensive discussion.

2.2.2. RELEVANT OUTCOMES FOR THE PROJECT

During the discussion, it turned out that the farmers are convinced that the use of circular fertilisers is necessary, especially compost due to the physical properties and the supply of organic carbon together with nutrients that have a significant benefit on the soil in the long-term. But at the same time, they find the price for compost coming from this compost facility too high. They also have doubts whether the “special” type of composts with very high prices are useful as the applied quantities – especially in the formulation compost-tea – are very low.

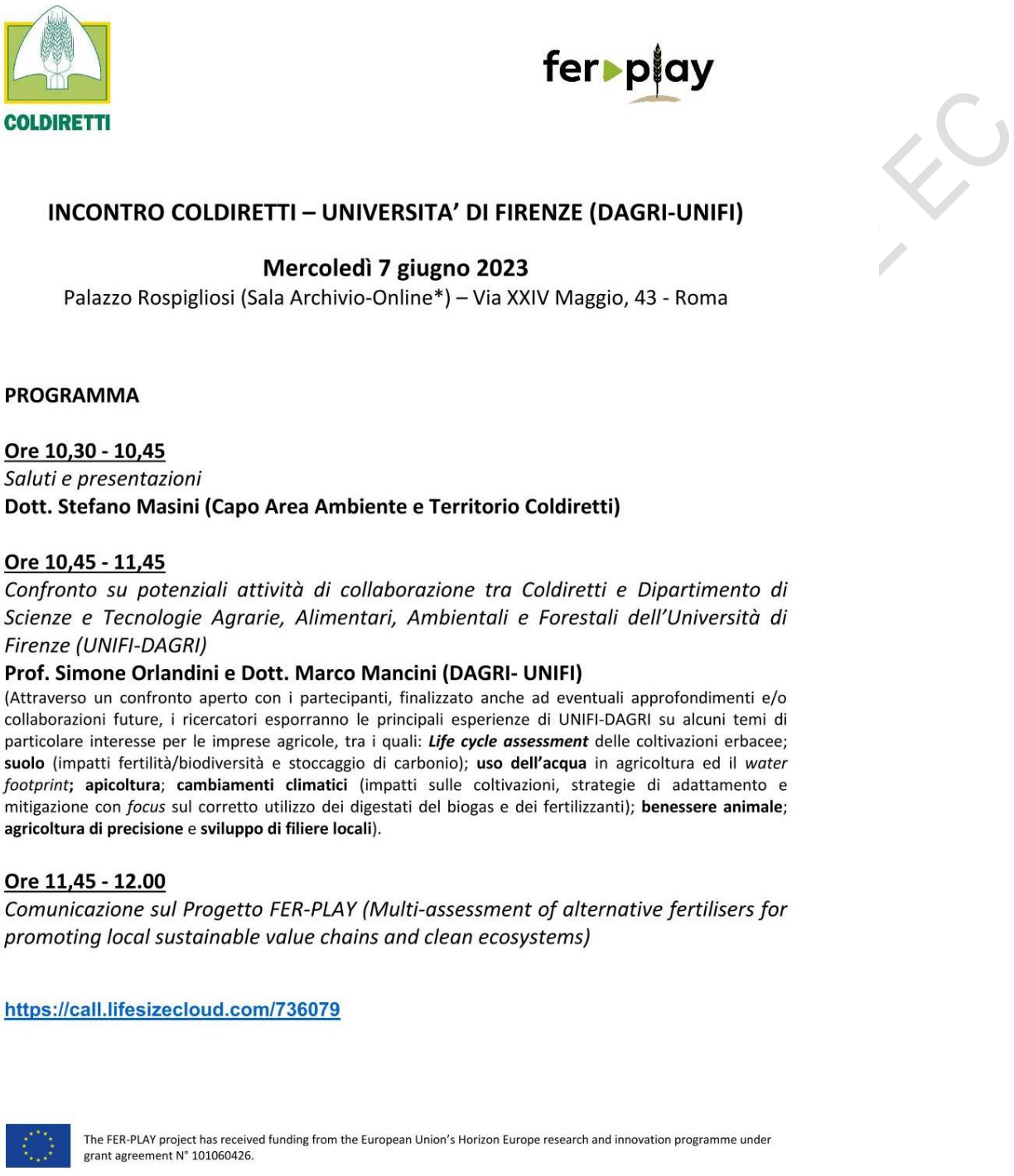
2.3. Event with end-users from Italy (07/06/2023)

Table 6. Event Main Features (Seminar in Italy on 07/06/2023)

Responsible partner:	COLDIRETTI
Target public:	End-users
Type of event:	Seminar
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	Joint with institutional activities of COLDIRETTI
Main scope:	Discussing and collecting end-users' opinion on several topics of interest for the farmers, as soil management, climate changes, fertilisers use, water use, animal welfare, precision farming.
Location (Country acronym):	IT
Date (dd/mm/yyyy):	07/06/2023
Duration (hours):	1.5 hours
Impact:	12 participants (12 farmers+technicians)

On 07/06/2023 an online seminar organised by COLDIRETTI took place. The agenda of the event is available in Figure 5 which follows.

Figure 5. Agenda of the seminar on 07/06/2023 in Italy



COLDIRETTI

fer▸play

INCONTRO COLDIRETTI – UNIVERSITA' DI FIRENZE (DAGRI-UNIFI)

Mercoledì 7 giugno 2023

Palazzo Rospigliosi (Sala Archivio-Online*) – Via XXIV Maggio, 43 - Roma

PROGRAMMA

Ore 10,30 - 10,45

Saluti e presentazioni

Dott. Stefano Masini (Capo Area Ambiente e Territorio Coldiretti)

Ore 10,45 - 11,45

Confronto su potenziali attività di collaborazione tra Coldiretti e Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali dell'Università di Firenze (UNIFI-DAGRI)

Prof. Simone Orlandini e Dott. Marco Mancini (DAGRI- UNIFI)

(Attraverso un confronto aperto con i partecipanti, finalizzato anche ad eventuali approfondimenti e/o collaborazioni future, i ricercatori esporranno le principali esperienze di UNIFI-DAGRI su alcuni temi di particolare interesse per le imprese agricole, tra i quali: ***Life cycle assessment*** delle coltivazioni erbacee; **suolo** (impatti fertilità/biodiversità e stoccaggio di carbonio); **uso dell'acqua** in agricoltura ed il *water footprint*; **apicoltura**; **cambiamenti climatici** (impatti sulle coltivazioni, strategie di adattamento e mitigazione con *focus* sul corretto utilizzo dei digestati del biogas e dei fertilizzanti); **benessere animale**; **agricoltura di precisione** e **sviluppo di filiere locali**).

Ore 11,45 - 12.00

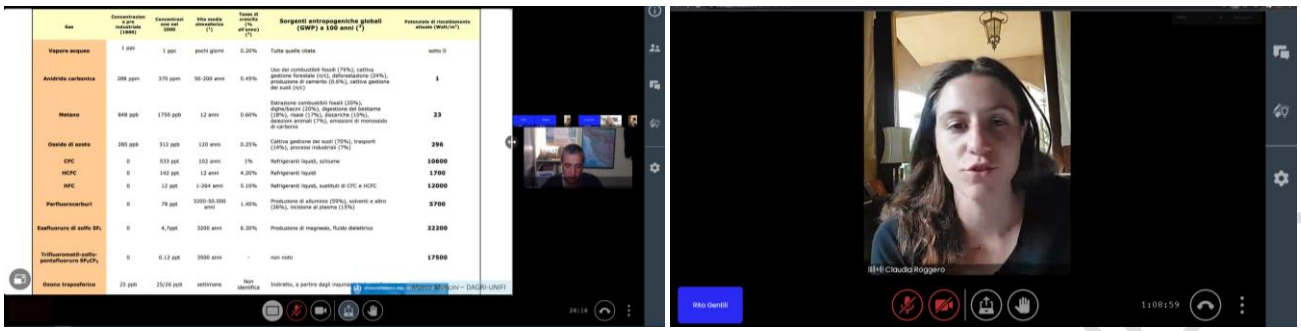
Comunicazione sul Progetto FER-PLAY (Multi-assessment of alternative fertilisers for promoting local sustainable value chains and clean ecosystems)

https://call.lifesizecloud.com/736079

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

Some screenshots taken during the online seminar in Italy are presented in Figure 6.

Figure 6. Screenshots from the seminar on 07/06/2023 in Italy



2.3.1. SUMMARY OF THE DISCUSSION

The online event on 07/06/2023 organised by COLDIRETTI aimed at discussing with some end-users on several topics of interest for the farming activity, such as soil management, climate changes, fertilisers use, water use, animal welfare, precision farming, organic farming. In particular, the event gave the chance to present to farmers several research and innovation activities which can be helpful to face those critical challenges that the agricultural sector is struggling in the last years.

The meeting was opened by Francesco Ciancaleoni, internal staff of COLDIRETTI and member of FER-PLAY Working Group. Mr. Ciancaleoni pointed out the importance of cooperation with the academy and more generally with researchers, to improve the overall sustainability of the farming practices, which takes into account its environmental, social and economic aspects.

The floor was then taken by Francesco Giardina, director of the Organic Farming Association of COLDIRETTI, who recalled the EU objectives in terms of organic agricultural surface and highlighted how the organic farming moves between agriculture and environmentalism.

The next speaker was Marco Mancini, researcher at University of Pisa (Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali) who presented some of the research and innovation activities in which the University is involved, dealing with agricultural topics.

The final speech was done by Rita Gentili, from COLDIRETTI, who presented FER-PLAY project, the results reached so far and the co-creation process which is implemented within the project to collect opinions of end-users. Following this aim, the survey designed within the project to assess the main key aspects (both barriers and opportunities) of the social acceptance of circular fertilisers was presented with the request to the farmers to fill it in.

A discussion then opened with some reflections on the following topics:

- Claudia Roggero presented the climate change that affects all agricultural activities, jeopardising the survival of many farms. On the beekeeping sector this is particularly important, many beehives are dying and the production of honey is dramatically decreasing, putting at risk beekeepers' income.
- Davide Conti spoke about the difficulties in the organic farming to manage pathophysiological diseases.
- Luca Motta underlined the importance to move towards a reduced use of chemical fertilisers to protect the environment and the soil.
- Francesco Ciancaleoni explained the specific interest of COLDIRETTI towards the digestate coming from biogas plants fed with livestock waste, to extend the circularity of the agricultural production process.
- Francesco Giardina, in connection to what said by the previous speaker, presented the need of supporting the livestock sector which has been often subject of unjustified critics for being unsustainable.

2.3.2. RELEVANT OUTCOMES FOR THE PROJECT

General attention of young farmers shown towards more environmentally sustainable farming practices is to be underlined: this is an important background condition for the promotion of circular fertiliser and a target audience to be specifically addressed by FER-PLAY project.

2.4. Event with end-users from Belgium (20/06/2023)

Table 7. Event Main Features (Workshop in Belgium on 20/06/2023)

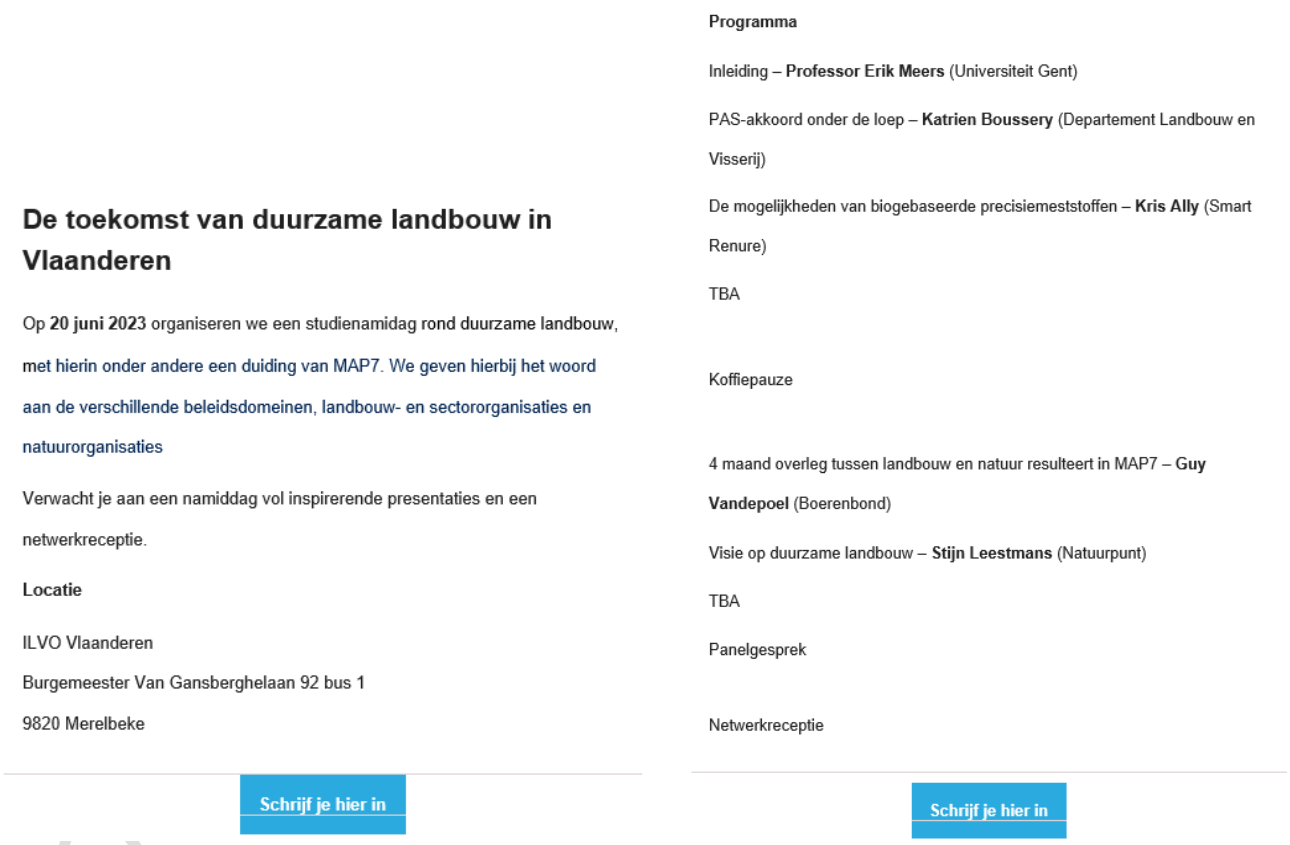
Responsible partner:	INAGRO
Target public:	Researchers, fertiliser producers, policy, farmers
Type of event:	Workshop
Modality:	Physical meeting
Joint event with fellow project / FER-PLAY dedicated event:	Joint with the Flemish nutrient platform (Nutricycle Vlaanderen) and NOVAFERT
Main scope:	Future of sustainable agriculture in Flanders
Location (Country acronym):	Melle (BE)
Date (dd/mm/yyyy):	20/06/2023

Duration (hours):	3.5 hours (FER-PLAY was only briefly mentioned)
Impact:	56 participants (16 farmers+technicians; 3 fertiliser producers; 13 representatives of PA)

On 20/06/2023 in Melle (Belgium) a workshop took place with the main objective to discuss the future of the sustainable agriculture in Flanders. The workshop was a joint event with Nutricycle Vlaanderen (https://nutricycle.vlaanderen/) and NOVAFERT project (https://www.novafert.eu/).

The agenda of the event and the photos taken during the event are presented below (see Figure 7 and Figure 8, respectively).

Figure 7. Agenda of the workshop on 20/06/2023 in Belgium



De toekomst van duurzame landbouw in Vlaanderen

Op **20 juni 2023** organiseren we een studienamidag rond duurzame landbouw, met hierin onder andere een duiding van MAP7. We geven hierbij het woord aan de verschillende beleidsdomeinen, landbouw- en sectororganisaties en natuurorganisaties

Verwacht je aan een namiddag vol inspirerende presentaties en een netwerkreceptie.

Locatie

ILVO Vlaanderen
Burgemeester Van Gansberghelaan 92 bus 1
9820 Merelbeke

Schrijf je hier in

Programma

Inleiding – **Professor Erik Meers** (Universiteit Gent)

PAS-akkoord onder de loep – **Katrien Boussery** (Departement Landbouw en Visserij)

De mogelijkheden van biogebaseerde precisiemeststoffen – **Kris Ally** (Smart Renure)

TBA

Koffiepauze

4 maand overleg tussen landbouw en natuur resulteert in MAP7 – **Guy Vandepoel** (Boerenbond)

Visie op duurzame landbouw – **Stijn Leestmans** (Natuurpunt)

TBA

Panelgesprek

Netwerkreceptie

Schrijf je hier in

Figure 8. Photos from the workshop on 20/06/2023 in Belgium

2.4.1. SUMMARY OF THE DISCUSSION

The event co-organised by FER-PLAY on 20/06/2023 gathered 56 quadruple helix stakeholders, who received a goodie bag with a FER-PLAY flyer with the QR-code of the survey placed on the back.

During the event, there were presentations on the following topics:

- The introduction was done by Professor Erik Meers (Ghent University; Coordinator of the NOVAFERT sister project), in which he also highlighted the importance of Community-supported agriculture (CSA) projects like FER-PLAY and its sister project NOVAFERT.
- Then PAS (Programme-based approach to Nitrogen) was presented by Katrien Boussery (Department of Agriculture and Fisheries), who talked about the consequences on the current and future legislation regarding nitrogen emissions.
- The opportunities of biobased precision fertilisers were explained by Kris Ally (Smart Renure), who talked about the importance of recycling-derived fertilisers (RDFs) and a fertiliser machine that was developed by Smart Renure, specifically suited for the application of RDFs.
- The combination of precision farming and mineral fertiliser replacement in potatoes was presented by Jacob Van den Borne (farmer), who talked about the innovative practices he is implementing on his farm.
- The vision of nature organisations and farmer organisations on the new Manure Action Plan was presented by Guy Vandepoel (Boerenbond), Mark Wulfrancke (ABS) and Stijn Leestmans (Natuurpunt).
- Bart De Schutter (VLM) presented lessons of the manure report in Flanders.

Afterwards, a panel debate with all the speakers took place.

2.4.2. RELEVANT OUTCOMES FOR THE PROJECT

It was highly interesting to learn how nature protection organisations, on the one hand, and farmer organisations, on the other hand, were able to find an agreement, although they have completely opposite ideas. In general, all participants believed that new technologies could transform agricultural practices, but important points of attention for implementation are profitability, legislative aspects and reliability.

2.5. Event with end-users from EU (28/06/2023)

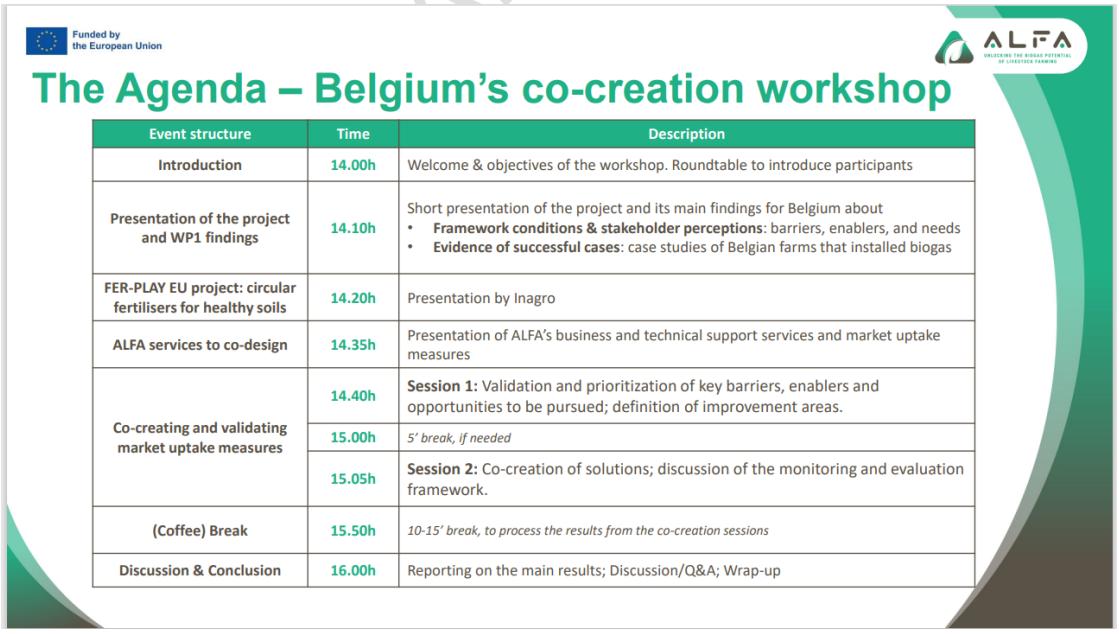
Table 8. Event Main Features (Workshop on 28/06/2023)

Responsible partner	INAGRO
Target public:	Researchers, fertiliser producers, policy, farmers
Type of event:	Co-creation workshop
Modality:	Online meeting
Joint event with fellow project / FER-PLAY dedicated event:	Joint with the EU ALFA project
Main scope:	Co-creation workshop
Date (dd/mm/yyyy):	28/06/2023
Duration (hours):	2.5 hours (FER-PLAY had 15 min. presentation)
Impact:	14 participants (1 farmer+technician; 1 fertiliser producer; 1 representative of PA)

On 28/06/2023 in Belgium an online co-creation workshop took place. It was a joint event with the ALFA project (Upscaling the market uptake of renewable energy by Unlocking the biogas potential of livestock farming: https://alfa-res.eu/).

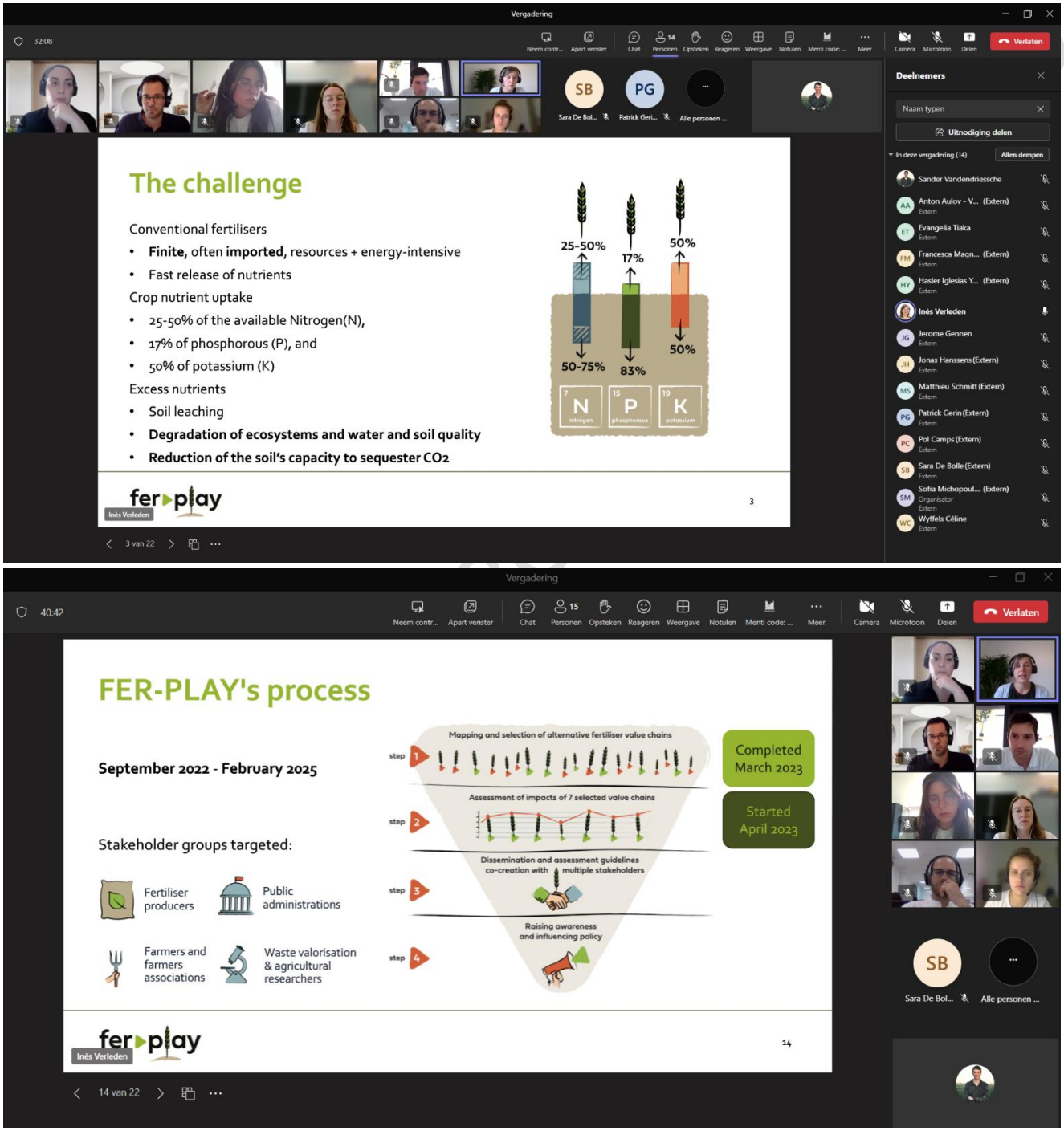
The agenda of the event is presented below in Figure 9.

Figure 9. Agenda of the workshop on 28/06/2023



Some screenshots from the workshop when FER-PLAY project was presented to the participants are reported on the following Figure 10.

Figure 10. Screenshots from the workshop on 28/06/2023



2.5.1. SUMMARY OF THE DISCUSSION

Through supporting solutions and developing measures for the introduction of biogas systems and nutrient recovery in livestock farming, the ALFA project aims to accelerate the roll-out of biogas. To identify bottlenecks and needs, a co-creation workshop was organised, where input was important to provide tailor-made support.

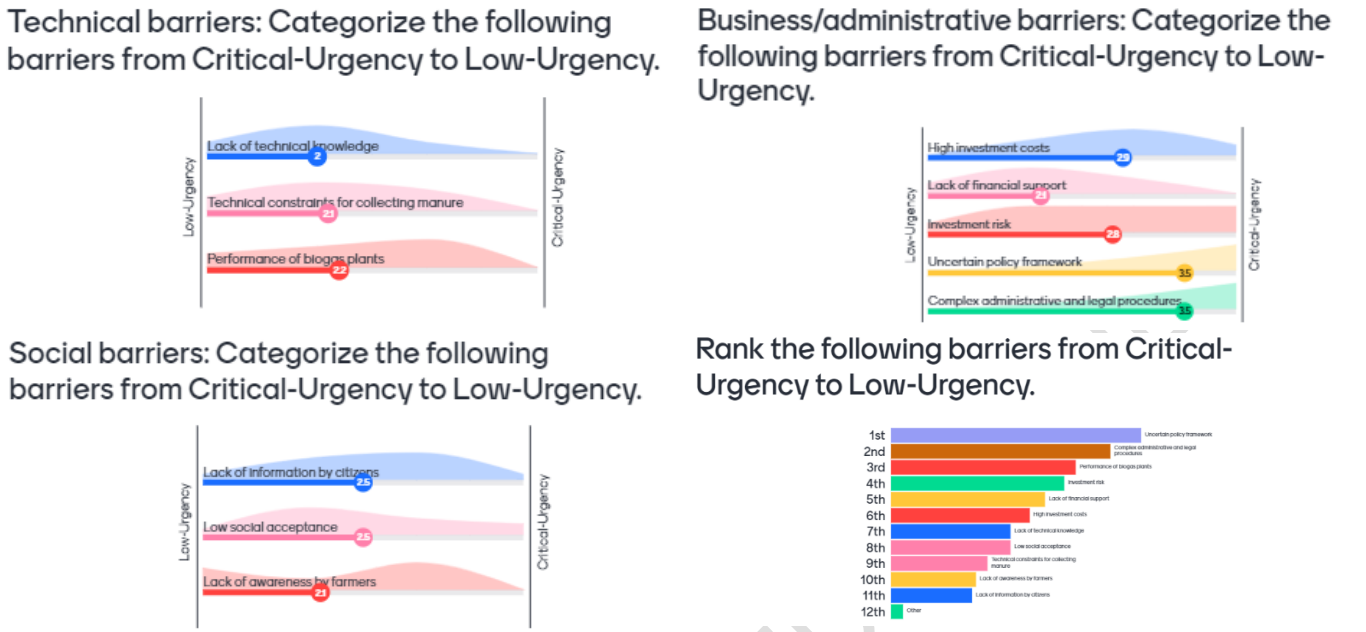
The following points are the ones which merged during the discussion:

- After the introduction, ALFA project and its results were presented.
- Then FER-PLAY presentation on circular fertilisers took place.
- The next step was the explanation of ALFA service for co-design.
- The important part of the discussion was the one about co-creation and validation of market introduction measures. This part included the presentation of validation and prioritisation of key barriers, drivers and opportunities to be pursued; definition of areas for improvement, on one hand, and co-creation of solutions; discussion of monitoring and evaluation framework, on the other hand.
- During the final part the discussion took place, after which the conclusions were pointed out.

2.5.2. RELEVANT OUTCOMES FOR THE PROJECT

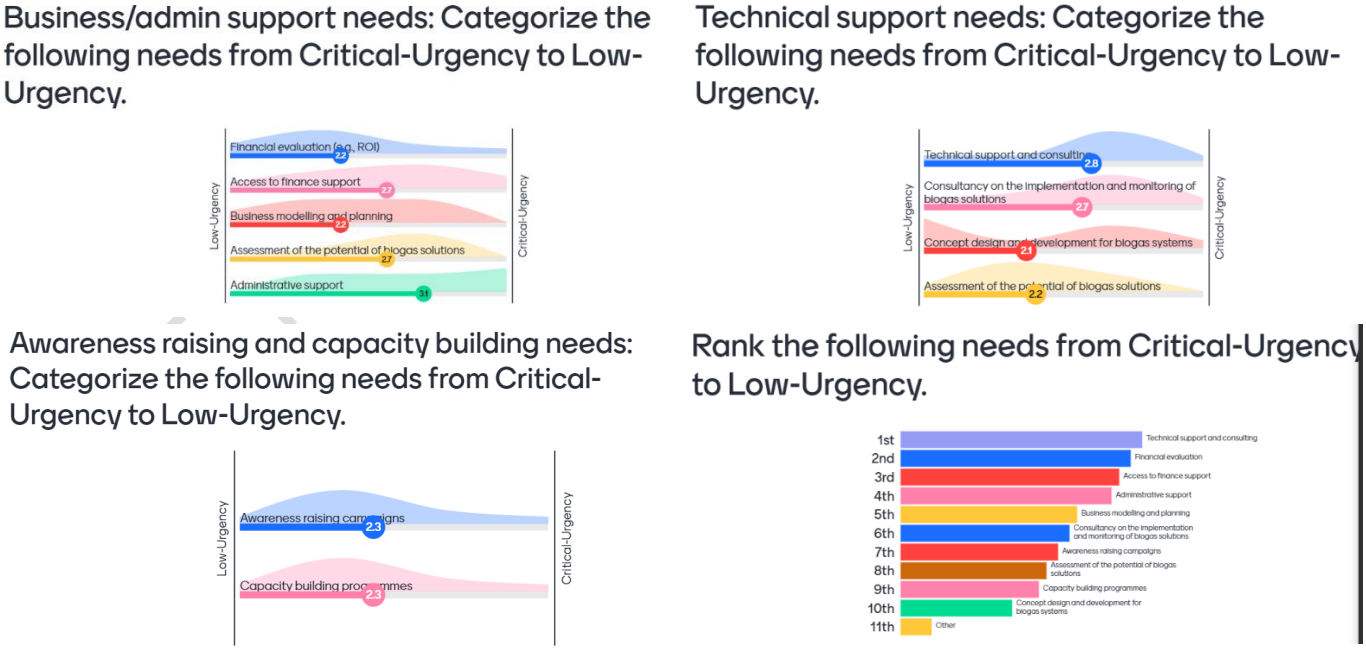
The following barriers for farm-scale anaerobic digestion implementation were evaluated from low to critical urgency (see Figure 11 below).

Figure 11. Polls concerning barriers for farm-scale anaerobic digestion implementation



Then the participants were asked to categorise the support needs of different types. The results of these polls are presented in Figure 12 which follows.

Figure 12. Polls concerning the needs in support



2.6. Event with end-users from Belgium (30/06/2023)

Table 9. Event Main Features (Workshop in Belgium on 30/06/2023)

Responsible partner:	INAGRO
Target public:	Researchers, farmers (horticulturists)
Type of event:	Field trial visit
Modality:	Physical event
Joint event with fellow project / FER-PLAY dedicated event:	Joint with IPMworks project
Main scope:	Interactive on-field session with farmers
Location (Country acronym):	Inagro, Roeselare (BE)
Date (dd/mm/yyyy):	30/06/2023
Duration (hours):	2.5 hours
Impact:	36 participants (24 farmers+technicians)

On 30/06/2023 in Belgium, INAGRO organised a field trial visit in which some questions of special interest for FER-PLAY project were discussed with participants. It was a joint event with IPMworks project ("An EU-wide farm network demonstrating and promoting cost-effective IPM strategies"; https://ipmworks.net/).

The agenda of the event is presented below in Figure 13.

Figure 13. Agenda of the field trial visit on 30/06/2023 in Belgium

Het aardbeiteam nodigt je op 30 juni uit voor een bezoek aan de serres en stellingen van Inagro. Ben je benieuwd naar de resultaten van onze afgelopen proeven? En wil je meer weten over de lopende proeven? Dan is dit proefveldbezoek iets voor jou!

In het kort

- **Vrijdag 30 juni 2023 - van 19 u tot 21.30 u**
- **Inagro, Ieperseweg 87 in Rumbeke-Beitem.**
  We verzamelen aan de serreloods.
- **Gratis deelname, maar inschrijven is verplicht**

Ik schrijf me in!

Programma

- Ontvangst met broodjes
- We nemen een kijkje naar verschillende proeven/thema's:

  - Demonstratieve rassenproef doordragers onder glas (Rassen: Verity, AuroraKarima en Florice)
  - Door middel van teelttechniek komen tot een stabieler plukverloop in je doordrager
  - Gebruik van herwonnen meststoffen op het trayveld als bladbemesting
  - Duurzaam watergebruik: afdekken van je waterbassin en berekenen van je benodigde water
  - Inzetten van bankerplanten om je nuttigen te boosten tegen bladluis

- De resultaten van deze afgelopen proeven krijg je mee:

  - Demonstratieve rassenproef junidragers in een voorjaarsteelt (rassen: Sonata, Sonsation en RendezVous)
  - Meervoudig hergebruik van substraat
  - Witziekte beheersen op basis van pathogeen-ontwikkeling

- Afsluiten met een drankje

In Figure 14 some photos taken during the field trial visit on 30/06/2023 are presented.

Figure 14. Photos from the field trial visit on 30/06/2023 in Belgium

2.6.1. SUMMARY OF THE DISCUSSION

Participants to the event circulated in two groups between all the different stands, where they received information and INAGRO had the opportunity to make some interactive questions for the interest of the project.

At FER-PLAY stand, the project poster was hung up and three circular fertilisers were displayed. FER-PLAY flyer was distributed as well, with the survey QR-code printed on the back. During the 10 minutes time slot per group, the project and products were presented and there was time for two quick interactive questions:

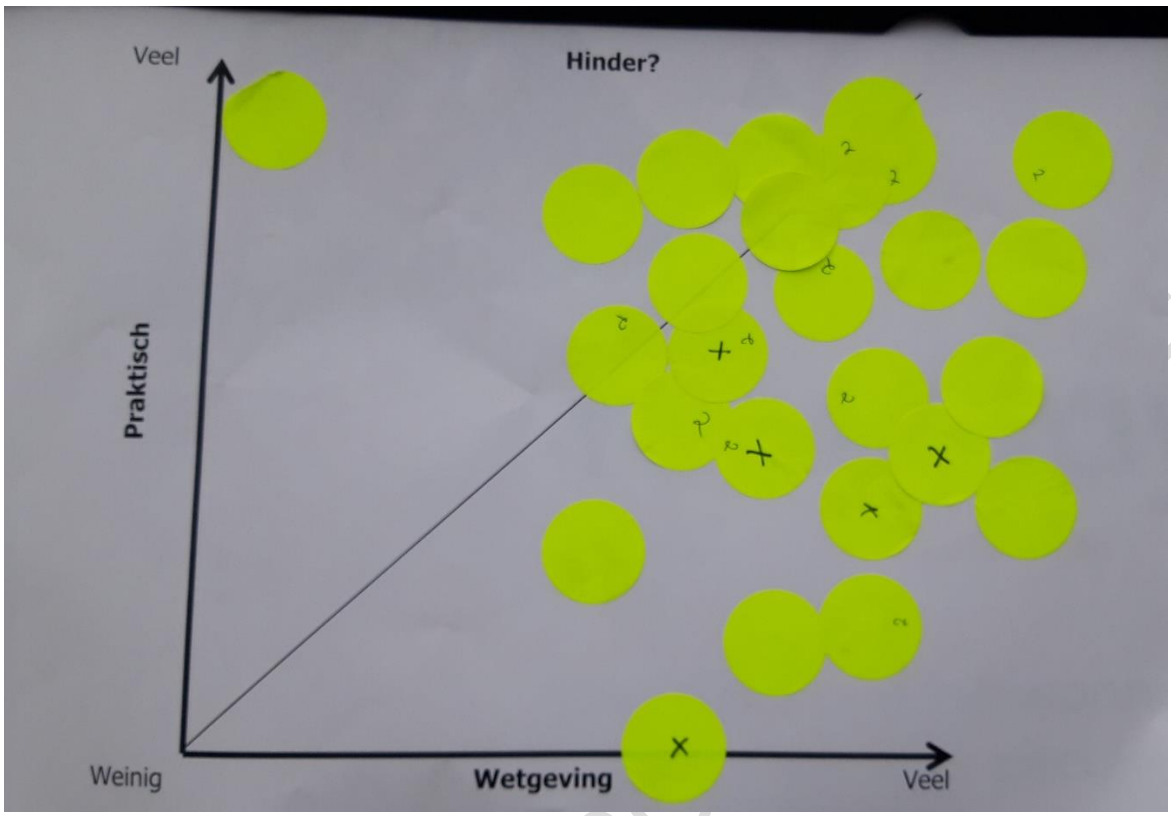
- “Would you be interested in using this kind of products at your company?”
- “Do you see a lot of practical and/or legislative bottlenecks?”

2.6.2. RELEVANT OUTCOMES FOR THE PROJECT

When the participants were asked if they would consider using circular fertilisers, half of then answered in the affirmative, other half answered in the negative.

Participants were also asked to put a sticker on a poster as shown in Figure 15 which follows, with their indication of the technical and legislative bottlenecks (The x-axis indicates the legislation, from little to a lot. The y-axis indicated the technical side, from little to a lot of bottlenecks).

Figure 15. Results of the interactive question on “where do you see bottlenecks?”



These are some of the conclusions which came out from the discussion:

- Profit margins are small, especially for fertilisers cost, so a lot would depend on the price.
- Legislation also needs to allow it, although this seems less relevant for horticulture than in agriculture.
- Although some participants saw few problems with the technical use of the products, in some cases, the fertilisers need to be purer to be used in horticulture fertilisation systems.

2.7. Event with end-users from Belgium (07/09/2023)

Table 10. Event Main Features (Workshop in Belgium on 07/09/2023)

Responsible partner	INAGRO
Target public:	Researchers, farmers
Type of event:	Company visit

Modality:	Physical event
Joint event with fellow project / FER-PLAY dedicated event:	Joint with local demonstration project Boost Pocketvergisting & Nabewerking (small-scale anaerobic digestion and processing)
Main scope:	Interactive company visit - sewage treatment plant
Location (Country acronym):	Aquafin, Antwerpen (BE)
Date (dd/mm/yyyy):	07/09/2023
Duration (hours):	3 hours
Impact:	16 participants (3 farmers+technicians; 1 fertiliser producer; 3 representatives of PA)

On 07/09/2023 in Belgium, INAGRO organised a company visit at a sewage treatment plant in which FER-PLAY results obtained so far were discussed with participants. It was a joint event with a Flemish demonstration project Boost Pocketvergisting en nabewerking (https://inagro.be/projecten/boost-pocketvergisting-en-nabewerking).

The agenda of the event is presented below in Figure 16.

Figure 16. Agenda of the company visit on 07/09/2023 in Belgium

In Figure 17 a photo taken during the company visit on 07/09/2023 is presented.

Figure 17. Photo from the company visit on 07/09/2023 in Belgium

2.7.1. SUMMARY OF THE DISCUSSION

All participants joining the company visit at a sewage treatment plant listened to a presentation on the project and different nutrient recovery techniques and their circular fertilisers, with focus on ammonia stripping, after which a guided tour of the facility and to the ammonia stripping installation was hosted.

2.7.2. RELEVANT OUTCOMES FOR THE PROJECT

The participants were very interested in the ammonia stripping technique and the product (ammonia salts) it provides. There was a special interest in the price details, both investment and operational costs of the technique, and the market price of the product.

2.8. Event with end users from Germany (12/09/2023)

Table 11. Event Main Features (Workshop in Germany on 12/09/2023)

Responsible partner:	NATURLAND

Target public:	Farmers, advisers, producers
Type of event:	Workshop
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Joint event with German BÖL project ProBio
Main scope:	Compost
Location (Country acronym):	Borgstedtfelde (DE)
Date (dd/mm/yyyy):	12/09/2023
Duration (hours):	4 hours
Impact:	11 participants (11 farmers+technicians)

The event entitled "The potential of compost in organic farming - ProBio and FER-PLAY event" was held on 12/09/2023. ProBio is a German funded project (http://www.projekt-probio.de) dealing with compost use for organic farming. The agenda of the Event is shown in the following Figure 18.

Figure 18. Agenda of the workshop on 12/09/2023 in Germany

NATURLAND INFORMATION

„Das Potenzial von Kompost im Ökolandbau – ProBio und FER-PLAY Veranstaltung“

Sehr geehrte Naturland Mitglieder,
Liebe Bäuerinnen, liebe Bauern,

wir laden Sie herzlich zu unserer Infoveranstaltung am
12.09.2023 von 14:00 bis 18:00 Uhr ein.

Treffpunkt: AWR BioEnergie GmbH, Borgstedtfelde 15, 24794 Borgstedt
Kosten: keine

Thema:

Im Projekt ProBio (Untersuchungen zur optimalen Produktion und pflanzlichen Verwertung von Biogut- und Grüngutkompost im ökologischen Landbau) wird die Wirkung und das Einsatzpotenzial von Komposten aus dem Kompostwerk im ökologischen Landbau mithilfe von Feld- und Praxisversuchen untersucht. Komposte stellen gerade auf viehlosen und viehharmen Betrieben eine wertvolle Nährstoffquelle für den ökologischen Landbau dar, werden jedoch häufig aufgrund von Vorbehalten oder logistischen Hemmnissen nicht eingesetzt. Diese Veranstaltung soll interessierte Landwirt:innen informieren, die Gelegenheit zum Austausch mit der Kompostbranche und Berufskolleg:innen bieten und den Einsatz von Kompost in der Öko-Landwirtschaft fördern. Das EU-Projekt FER-PLAY, das sich mit der Förderung alternativer organischer Düngemittel befasst, wird ebenfalls im Rahmen der Veranstaltung vorgestellt.

Programm:

Uhrzeit		Ort	Referent:in
14:00 Uhr	Ankommen, Begrüßung und Vorstellung	AWR BioEnergie GmbH Borgstedtfelde 15 24794 Borgstedt Link in Google Maps	Annemarie Ohlwärter (Naturland)
14:15-15:45	Besichtigung der Kompostierungsanlage		
15:45-16:00	Kaffeepause		

Öko-BeratungsGesellschaft mbH | Eichethof 1 | 85411 Hohenkammer
Tel. 08137 / 6372 -902 | Fax 08137 / 6372 -919 | info@naturland-beratung.de | www.naturland-beratung.de
Bankverbindung: Sparkasse Dachau | SWIFT: BYLADEM1DAH | IBAN: DE62700515400000664912
Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München |
Geschäftsführer: Martin Bär

NATURLAND INFORMATION

16:00-16:30 Uhr	Vorstellung der Ergebnisse zur Kompostwirkung aus dem Projekt ProBio		Lucie Chmelikova (Technische Universität München)
16:30-16:45	Informationen zu Verbandsrichtlinien beim Komposteinsatz		Annemarie Ohlwärter (Naturland)
16:45-17:15	Vorstellung des FER-PLAY Projekts		Ramona Kinder (Naturland)
17:15-17:45	Kompostanwendung im Betrieb - Praktikervortrag		Tilman von Münchhausen (Gut Rosenkrantz)
17:45-18:00 Uhr	Abschlussdiskussion, Ende der Veranstaltung		Moderation: Annemarie Ohlwärter

Anmeldung bitte bis 08.09.2023 über die Naturland App oder auf unserer Homepage unter Veranstaltungen für Erzeuger (naturland.de) direkt in der Terminansicht.

Bei weiteren Fragen zur Veranstaltung melden Sie sich gerne bei Annemarie Ohlwärter, Tel: 015165905190

Wir freuen uns auf Ihre Teilnahme!
Ihre Beratung für Naturland und die ProBio-Projektpartner

Gefördert durch aufgrund eines Beschlusses des Deutschen Bundestages

Öko-BeratungsGesellschaft mbH | Eichethof 1 | 85411 Hohenkammer
Tel. 08137 / 6372 -902 | Fax 08137 / 6372 -919 | info@naturland-beratung.de | www.naturland-beratung.de
Bankverbindung: Sparkasse Dachau | SWIFT: BYLADEM1DAH | IBAN: DE62700515400000664912
Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München |
Geschäftsführer: Martin Bär

In Figure 19 a photo taken during different stages of the workshop is presented.

Figure 19. Photo from the workshop on 12/09/2023 in Germany

2.8.1. SUMMARY OF THE DISCUSSION

The following issues were discussed during the workshop:

- Information on standards and guidelines for compost use (EU organic standards and private standards).
- Presentation of the results on the compost effect.
- Compost application in practice, fertilising effect and legal framework conditions (fertiliser regulations).
- Compost application on farm – example.
- Presentation of FER-PLAY project.

The group of participants was small but this enabled an intensive discussion.

2.8.2. RELEVANT OUTCOMES FOR THE PROJECT

Below some relevant outcomes for the project are presented:

- Organic farmers are convinced that the use of circular fertilisers, especially compost, makes sense and is necessary in the long term.
- Educational work still needs to be done on the application and spreading of compost, as some farmers are still very reluctant in some cases.
- Price increases for conventional fertilisers enhance the demand for compost.

Farmers agree that public education is the most important tool. There is still a lot of education to be done on the topic of proper waste separation among the general public, because with proper waste separation, resources can also be reused even better. In this way, they do not end up in the incinerator or landfill.

2.9. Event with end-users from Belgium (15/09/2023)

Table 12. Event Main Features (Workshop in Belgium on 15/09/2023)

Responsible partner:	INAGRO
Target public:	Researchers, farmers, policy makers
Type of event:	Company visit
Modality:	Physical event

Joint event with fellow project / FER-PLAY dedicated event:	Joint with local demonstration project Boost Pocketvergisting & Nabewerking (small-scale anaerobic digestion and processing)
Main scope:	Interactive company visit – manure treatment plant
Location (Country acronym):	Staden (BE)
Date (dd/mm/yyyy):	15/09/2023
Duration (hours):	3 hours
Impact:	56 participants (29 farmers+technicians; 2 fertiliser producer; 4 representatives of PA)

On 15/09/2023 in Belgium, INAGRO organised a company visit to a manure treatment plant in which FER-PLAY results were discussed with participants. It was a joint event with a Flemish demonstration project Boost Pocketvergisting en nabewerking (https://inagro.be/projecten/boost-pocketvergisting-en-nabewerking).

The agenda of the event is presented below in Figure 20.

Figure 20. Agenda of the field trial visit on 15/09/2023 in Belgium

Is deze mail niet goed leesbaar? Bekijk deze mail online

Hier wordt stikstof teruggewonnen

inagro

Studienamiddag mestbewerking met bedrijfsbezoek

Beste Inès,

De veehouderij staat voor hete vuren vanwege de **hoge energie- en kunstmestprijzen**. Nochtans zijn er reeds technieken beschikbaar om toe te passen op het bedrijf dat landbouwers in staat stelt om meer zelfvoorzienend te worden. Binnen het demoproject 'Boo pocketvergisting en nabewerking' zullen we de sector bewuster maken van deze technieken de geïnteresseerden helpen ondersteunen in een doordachte keuze.

In maart gingen we reeds langs bij enkele pocketvergisters. Deze keer focussen we op de **nabewerkingstechnieken** van de mest of het digestaat. Door deze technieken wordt de mest opgewaardeerd tot een meer hoogwaardige meststof met een hogere bemestingsefficiëntie, ook wel gekend als **RENURE**. In principe creëer je dus kunstmest uit eigen mest.

Interesse? Kom langs op onze studiedag op vrijdag 15 september. *Op 7 september houden v een gelijkaardige studiedag in Antwerpen.*

In het kort

15 september 2023 van 12.30 u tot 16 u

Het Blommenhof, Guido Gezelleplein 12, 8840 Staden

Deelname is gratis. Inschrijven is verplicht.

Ik schrijf me in!

Programma

12u30: welkom voor een broodje
13u00: introductie van het project en de technieken - Inagro
13u10: nabewerkingstechnieken: wat zijn ze en waarom kan het interessant zijn? Inagro
13u50: hoe zit het met de wetgeving

- Pocketvergisting – Biogas-E
- Nabewerkingstechnieken – VCM
- Vergunningen – Boerenbond

14u30: een constructeur aan het woord – Detricon
15u00: verplaatsing en bezoek bij een plaatselijke ammoniakstripper

Het bedrijfsbezoek bevindt zich op een tiental minuutjes rijden van de zaal. Deze mestverwerker heeft een ammoniakstripper staan van Detricon dat ammoniumsulfaat produceert uit de dunne fractie van mest.

Meer info

Inès Verleden
ines.verleden@inagro.be
051 27 32 00

Ik schrijf me in!

In samenwerking met / met de steun van

fer play enerpedia

BOEREN BOND

Biogas-E

vcm

Deze studiedag kadert binnen het demoproject 'Boost pocketvergisting en nabewerking', het project FER-PLAY (gesubsidieerd door de Europese Commissie binnen Horizon Europe in het kader van het programma: "Voedsel, bio-economie, natuurlijke hulpbronnen, landbouw en milieu", subsidieovereenkomst ID: 101060426) en Enerpedia (gefinancierd door het Vlaams Klimaatfonds van de Vlaamse overheid in het kader van de uitvoering van het Vlaams Klimaatplan).

Blijf op de hoogte! Volg onze sociale media

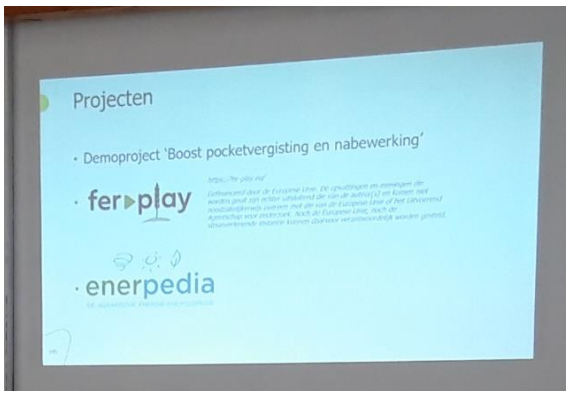
Inagro vzw
Ieperseweg 87, 8800 Rumbeke-Beitem
www.inagro.be
info@inagro.be

Pas mijn voorkeuren aan/uitschrijven

west-vlaanderen

In Figure 21 some photos taken during the company visit on 15/09/2023 are presented.

Figure 21. Photos from the company visit on 15/09/2023 in Belgium



2.9.1. SUMMARY OF THE DISCUSSION

All participants joining the event listened to a presentation on the project and different nutrient recovery techniques and their circular fertilisers, with focus on ammonia stripping, after which a guided tour of the facility and to the ammonia stripping installation was hosted.

2.9.2. RELEVANT OUTCOMES FOR THE PROJECT

The high turnout of participants showed that there is a lot of interest in this nutrient recovery technique and the product (ammonium salts).

During the debate, it became clear that legislation remains a huge barrier to invest in this technique or to use the product. In Flanders, the use of manure and manure-derived products on the field is limited. As animal husbandry is very intensive in Flanders, this limit is already being filled in with raw manure. There is a lot of interest in circular fertilisers, but as long as they need to be used within that same limit, they have no room to use them.

The investment in the ammonia stripping technique is also quite costly. However, for manure processing sites, common in Flanders, the business model would be more profitable than for farms without manure processing facilities.

2.10. Event with end-users from Germany (24/01/2024)

Table 13. Event Main Features (Conference in Germany on 24/01/2024)

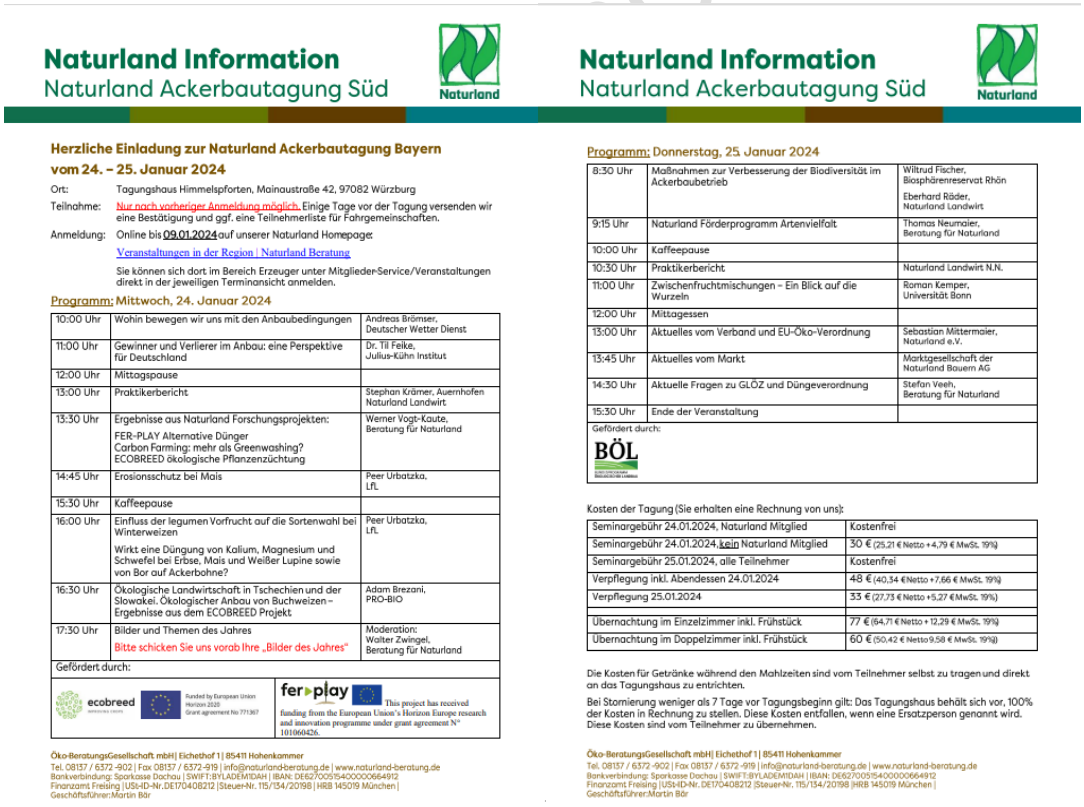
Responsible partner:	NATURLAND
Target public:	Farmers, advisers; NGOs

Type of event:	Conference
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Event celebrated within the Annual Meeting for NATURLAND arable farmers in South Germany. Organised together with EU project ECOBREED
Main scope:	Discuss on the opportunities of using struvite, digestate, compost, spent mushroom substrate
Location (Country acronym):	Würzburg (DE)
Date (dd/mm/yyyy):	24/01/2024
Duration (hours):	1 hour
Impact:	76 participants (76 farmers+technicians)

On 24/01/2024 in Germany, NATURLAND organised a conference with the end-users to discuss the use of circular fertilisers in agriculture from the regulatory and technical point of view, with a special focus on struvite.

The agenda of the event is presented below in Figure 22.

Figure 22. Agenda of the conference on 24/01/2024 in Germany



Naturland Information
Naturland Ackerbautagung Süd

Naturland

Herzliche Einladung zur Naturland Ackerbautagung Bayern vom 24. – 25. Januar 2024

Ort: Tagungshaus Himmelspforten, Mainaustraße 42, 97082 Würzburg

Teilnahme: Nur nach vorheriger Anmeldung möglich. Einige Tage vor der Tagung versenden wir eine Bestätigung und ggf. eine Teilnehmerliste für Fahrgemeinschaften.

Anmeldung: Online bis 09.01.2024 auf unserer Naturland Homepage:
Veranstaltungen in der Region | Naturland Beratung
Sie können sich dort im Bereich Erzeuger unter Mitglieder-Service/Veranstaltungen direkt in der jeweiligen Terminansicht anmelden.

Programm: Mittwoch, 24. Januar 2024

10:00 Uhr	Wohin bewegen wir uns mit den Anbaubedingungen	Andreas Brömser, Deutscher Wetter Dienst
11:00 Uhr	Gewinner und Verlierer im Anbau: eine Perspektive für Deutschland	Dr. Til Feike, Julius-Kühn Institut
12:00 Uhr	Mittagspause	
13:00 Uhr	Praktikerbericht	Stephan Krämer, Auernhofen Naturland Landwirt
13:30 Uhr	Ergebnisse aus Naturland Forschungsprojekten: FER-PLAY Alternative Dünger Carbon Farming: mehr als Greenwashing? ECOBREED ökologische Pflanzenzüchtung	Werner Vogt-Kaute, Beratung für Naturland
14:45 Uhr	Erosionsschutz bei Mais	Peer Urbatzka, LfL
15:30 Uhr	Kaffeepause	
16:00 Uhr	Einfluss der legumen Vorfrucht auf die Sortenwahl bei Winterweizen Wirkt eine Düngung von Kalium, Magnesium und Schwefel bei Erbse, Mais und Weißer Lupine sowie von Bor auf Ackerbohne?	Peer Urbatzka, LfL
16:30 Uhr	Ökologische Landwirtschaft in Tschechien und der Slowakei. Ökologischer Anbau von Buchweizen – Ergebnisse aus dem ECOBREED Projekt	Adam Brezani, PRO-BIO
17:30 Uhr	Bilder und Themen des Jahres Bitte schicken Sie uns vorab Ihre „Bilder des Jahres"	Moderation: Walter Zwingel, Beratung für Naturland

Gefördert durch:

ecobreed — Funded by European Union Horizon 2020 Grant agreement No 771367

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

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Geschäftsführer: Martin Bär

Naturland Information
Naturland Ackerbautagung Süd

Naturland

Programm: Donnerstag, 25. Januar 2024

8:30 Uhr	Maßnahmen zur Verbesserung der Biodiversität im Ackerbaubetrieb	Wiltrud Fischer, Biosphärenreservat Rhön Eberhard Räder, Naturland Landwirt
9:15 Uhr	Naturland Förderprogramm Artenvielfalt	Thomas Neumaier, Beratung für Naturland
10:00 Uhr	Kaffeepause	
10:30 Uhr	Praktikerbericht	Naturland Landwirt N.N.
11:00 Uhr	Zwischenfruchtmischungen – Ein Blick auf die Wurzeln	Roman Kemper, Universität Bonn
12:00 Uhr	Mittagessen	
13:00 Uhr	Aktuelles vom Verband und EU-Öko-Verordnung	Sebastian Mittermaier, Naturland e.V.
13:45 Uhr	Aktuelles vom Markt	Marktgesellschaft der Naturland Bauern AG
14:30 Uhr	Aktuelle Fragen zu GLÖZ und Düngeverordnung	Stefan Veeh, Beratung für Naturland
15:30 Uhr	Ende der Veranstaltung	

Gefördert durch:

BÖL

Kosten der Tagung (Sie erhalten eine Rechnung von uns):

Seminargebühr 24.01.2024, Naturland Mitglied	Kostenfrei
Seminargebühr 24.01.2024, kein Naturland Mitglied	30 € (25,21 € Netto + 4,79 € MwSt. 19%)
Seminargebühr 25.01.2024, alle Teilnehmer	Kostenfrei
Verpflegung inkl. Abendessen 24.01.2024	48 € (40,34 € Netto +7,66 € MwSt. 19%)
Verpflegung 25.01.2024	33 € (27,73 € Netto +5,27 € MwSt. 19%)
Übernachtung im Einzelzimmer inkl. Frühstück	77 € (64,71 € Netto + 12,29 € MwSt. 19%)
Übernachtung im Doppelzimmer inkl. Frühstück	60 € (50,42 € Netto 9,58 € MwSt. 19%)

Die Kosten für Getränke während den Mahlzeiten sind vom Teilnehmer selbst zu tragen und direkt an das Tagungshaus zu entrichten.

Bei Stornierung weniger als 7 Tage vor Tagungsbeginn gilt: Das Tagungshaus behält sich vor, 100% der Kosten in Rechnung zu stellen. Diese Kosten entfallen, wenn eine Ersatzperson genannt wird. Diese Kosten sind vom Teilnehmer zu übernehmen.

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Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München |
Geschäftsführer: Martin Bär

In Figure 23 some photos taken during the conference on 24/01/2024 are shown.

Figure 23. Photos from the conference on 24/01/2024 in Germany

2.10.1. SUMMARY OF THE DISCUSSION

The following issues were included in the discussion during the conference:

- Presentation of FER-PLAY project
- Presentation of the 7 chosen products in FER-PLAY for a deeper assessment, especially struvite
- Standards and guidelines for compost use (EU organic standards and private standards)
- Standard and guidelines for the other circular fertilisers
- Situation on farms (survey of farm gate balances) – P as the main problem
- Legal barriers for use of struvite
- Struvite application and fertilising effect

Farmers have proven to be interested, so this enabled an intensive discussion during the conference.

2.10.2. RELEVANT OUTCOMES FOR THE PROJECT

The following considerations can be considered relevant for the project:

- Most organic farmers are interested in using circular fertilisers because they are aware of negative nutrient balances, especially in phosphorus.
- Circular fertilisers are the only options for organic farmers. Rock phosphate would be legal in theory but organic farmers are not currently using it because of low efficiency and contamination with heavy metals.
- Digestate and spent mushroom substrate are available in the region and farmers are convinced that their use makes sense.
- Not all participants knew what struvite is and that it was permitted for organic agriculture last year.
- Unluckily there is still a barrier in Germany for organic farmers. Struvite for organic farmers has to be certified at European level but small producers have not done this. There is a company working on this registration/certification for 2025.

2.11. Event with end-users from Belgium (26/02/2024)

Table 14. Event Main Features (Webinar in Belgium on 26/02/2024)

Responsible partner:	INAGRO
Target public:	End users, but open to everyone
Type of event:	Webinar
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	Dedicated (but mentioning of 2 other projects: HERMEST & ReNu2Cycle)
Main scope:	Short presentation, focus on interaction
Location (Country acronym):	BE
Date (dd/mm/yyyy):	26/02/2024
Duration (hours):	1h 40 minutes
Impact:	27 participants of 65 registered (10 farmers+technicians; 3 fertiliser producers; 4 representatives PA)

On 26/02/2024 in Belgium, INAGRO organised a webinar with end-users which was dedicated to interaction and co-creation.

The invitation to the event is presented below in Figure 24.

Figure 24. Agenda of the webinar on 26/02/2024 in Belgium

Brainstorm digitaal mee over circulaire meststoffen

Beste Inès,

Is een meer circulaire landbouw de landbouw van de toekomst?

Door circulaire, herwonnen meststoffen te gebruiken kan je alvast bijdragen tot het meer sluiten van nutriëntenkringlopen.
Maar circulaire meststoffen brengen nog veel vragen met zich mee: wat zijn circulaire meststoffen precies? Hoe staat de wetgeving hier tegenover? Hoe pas ik ze praktisch toe?

Met enkele lopende projecten willen we hier verder op inzetten. Komende jaren zullen verschillende veldproeven aangelegd worden.
Welke knelpunten zie jij? Welke zaken zou je willen aangepakt zien in de veldproeven?
Waarmee moeten we zeker proberen rekening te houden?

Tijdens een interactieve webinar willen we hier dieper op ingaan. Er zal ruimte zijn om jouw mening anoniem met ons te delen, maar ook om meer context te scheppen voor zij die willen.

Laat je stem horen!

In het kort

- **26 februari 2024 - 13 u**
- **Webinar, online**
- **Gratis evenement.**
  Een deelnamelink aan de webinar zal enkele dagen op voorhand verstuurd worden. Schrijf je daarom zeker in.

Ik schrijf me in!

Programma

13.00 u
Introductie
13.15 u
Interactie en discussie

Meer info

Fare clic con il pulsante destro del mouse o toccare e tenere premuto qui per scaricare le immagini. Per proteggere la privacy, Outlook ha impedito il

Inès Verleden
ines.verleden@inagro.be
051 27 33 84

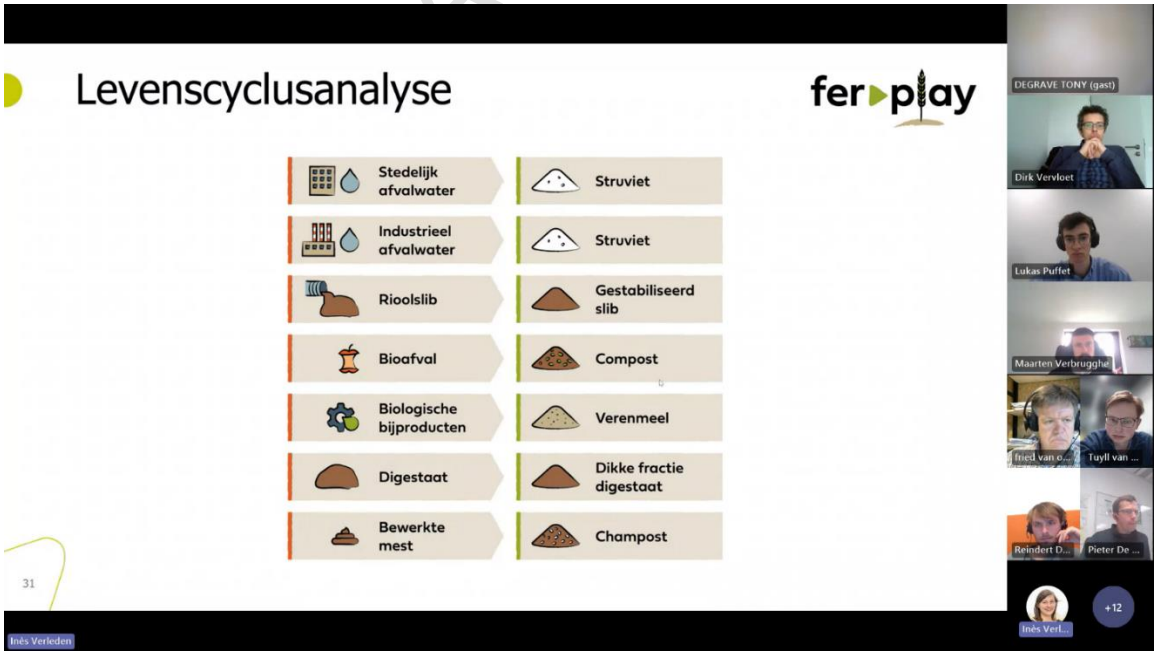
Ik schrijf me in!

In samenwerking met / met de steun van

Fare clic con il pulsante destro del mouse o toccare e tenere premuto qui per scaricare le immagini. Per proteggere la privacy, Outlook ha impedito il download automatico delle immagini da Internet.
An image

In Figure 25 screenshot from the webinar held on 26/02/2024 by INAGRO is presented.

Figure 25. Screenshot from the webinar on 26/02/2024 in Belgium



2.11.1. SUMMARY OF THE DISCUSSION

Out of 65 people had registered to the webinar, 27 different stakeholders were actually present:

- 8 farmers out of 25 registered
- 4 policymakers out of 7 registered
- 11 researchers/advisors out of 21 registered
- 3 fertiliser producers out of 6 registered
- 1 other out of 6 registered

To all registered people, the presentation as well as the following conclusions were sent:

- The various sectors agree that circular fertilisers offer opportunities in terms of sustainability, circularity and greater independence from synthetic fertilisers.
- The main bottlenecks are in the field of legislation (e.g. unclear policy framework) and practical application (uncertain composition, application techniques, ...), but also the perception (of e.g. society, trade chain) and the financial side (of both producer and user) should not be overlooked.
- Hopefully, the current projects will allow us to answer some of the questions and uncertainties and allow the gained knowledge to flow sufficiently towards the different relevant sectors. For future research, we note that the long-term impact, contamination at all levels and the need for standardisation and/or quality control certainly still need to be addressed.

2.11.2. RELEVANT OUTCOMES FOR THE PROJECT

Next to the conclusions mentioned in the summary, the audience was also specifically asked about their thoughts of the value chain selection for the LCA.

The participants were positive about:

- Including value chains from outside agriculture, as well as both fast and slow release fertilisers, as it matters less from where the nutrients come, as long as they can be tailored to the crops.
- Value chains that will increase the organic material in the soil.

Yet the participants also doubted, missed or mentioned:

- The absence of nitrogen fertilisers, including RENURE products, but also bone meal instead of feather meal.
- For products from origins such as wastewater, to make sure that there are no contaminants, microplastics, etc.
- To include the regulatory bottlenecks for on-farm composting.
- Questions on where the LCA starts: definitely include the wastewater treatment plant, where many nutrients that could be useful are removed at high cost.
- To take into account the local application of the solid fraction of digestate/spent mushroom substrate: both the advantage of the carbon content, but possible disadvantage of high phosphorous content.
- To take into account the dependence of Magnesium for the production of struvite.

2.12. Event with end-users from Italy (27/02/2024)

Table 15. Event Main Features (Webinar in Italy on 27/02/2024)

Responsible partner:	COLDIRETTI
Target public:	End users (agricultural companies, fertilisation companies, technicians, researchers)
Type of event:	Webinar
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	Dedicated
Main scope:	To involve farmers in a debate on how to increase the use of circular fertilisers in agriculture and how to make farmers themselves protagonists of change
Location (Country acronym):	IT
Date (dd/mm/yyyy):	27/02/2024
Duration (hours):	2h 30 minutes
Impact:	76 participants (73 farmers+ technicians)

On 27/02/2024 in Italy, COLDIRETTI BIO association organised a webinar with end-users which was an opportunity to facilitate the meeting among representative of the Academia and representatives of fertiliser producers and agricultural companies, in particular organic ones.

The agenda of the Event is presented in the following Figure 26.

Figure 26. Agenda of the webinar on 27/02/2024 in Italy

COLDIRETTI

fer▸play

Webinar 27 febbraio 2024, ore 15:30

Fertilizzanti Circolari: il ruolo delle aziende agricole

Il progetto FER-PLAY, di cui Coldiretti è partner, ha l'obiettivo di proteggere gli ecosistemi, ridurre la dipendenza dell'UE dalle importazioni di fertilizzanti e migliorare l'efficienza delle risorse attraverso la **promozione di fertilizzanti circolari.** Il webinar in oggetto vuole coinvolgere gli agricoltori in un dibattito su come aumentare l'utilizzo dei fertilizzanti circolari in agricoltura e come rendere gli agricoltori stessi protagonisti del cambiamento. Uno spazio specifico sarà dedicato a raccogliere le necessità delle aziende agricole per aumentare l'utilizzo di tali fertilizzanti e a identificare le barriere all'utilizzo di fertilizzanti circolari, e in particolar modo del digestato, sia dal punto di vista legislativo che economico.

Modera l'incontro il Dottor Francesco Giardina (Coldiretti BIO).

Contenuto	Relatori
Saluti iniziali	Prof. Stefano Masini, Responsabile Area Ambiente Coldiretti Dottor Fabio Refrigeri, Direttore Ager S.r.l.
Presentazione del progetto FER-PLAY	Referente Coldiretti
Fertilizzanti circolari: approfondimento sull'utilizzo del digestato	Intervengono Prof. Fabrizio Adani, Università di Milano Dott. Marco Mancini, Università di Firenze Dott. Leonardo Verdi, Università di Firenze
Intervento Consorzio Italiano Biogas	Dott. Piero Gattoni, Presidente del CIB
Intervento Consorzio Italiano Compostatori	Dott. Massimo Centemero, Direttore del CIC
Pausa	
Esperienze virtuose dal territorio	Intervengono Dott. Tommaso Carioni, CEO Azienda Carioni Dott. Agronomo Gabriele Geromel, Neorisorse S.r.l.
Fertilizzanti ed economia circolare	Dott. Michele Falce, Novamont
Dibattito e domande agli esperti	Tutti
Conclusioni e ringraziamenti	Dott.ssa Maria Letizia Gardoni, Presidente Coldiretti BIO

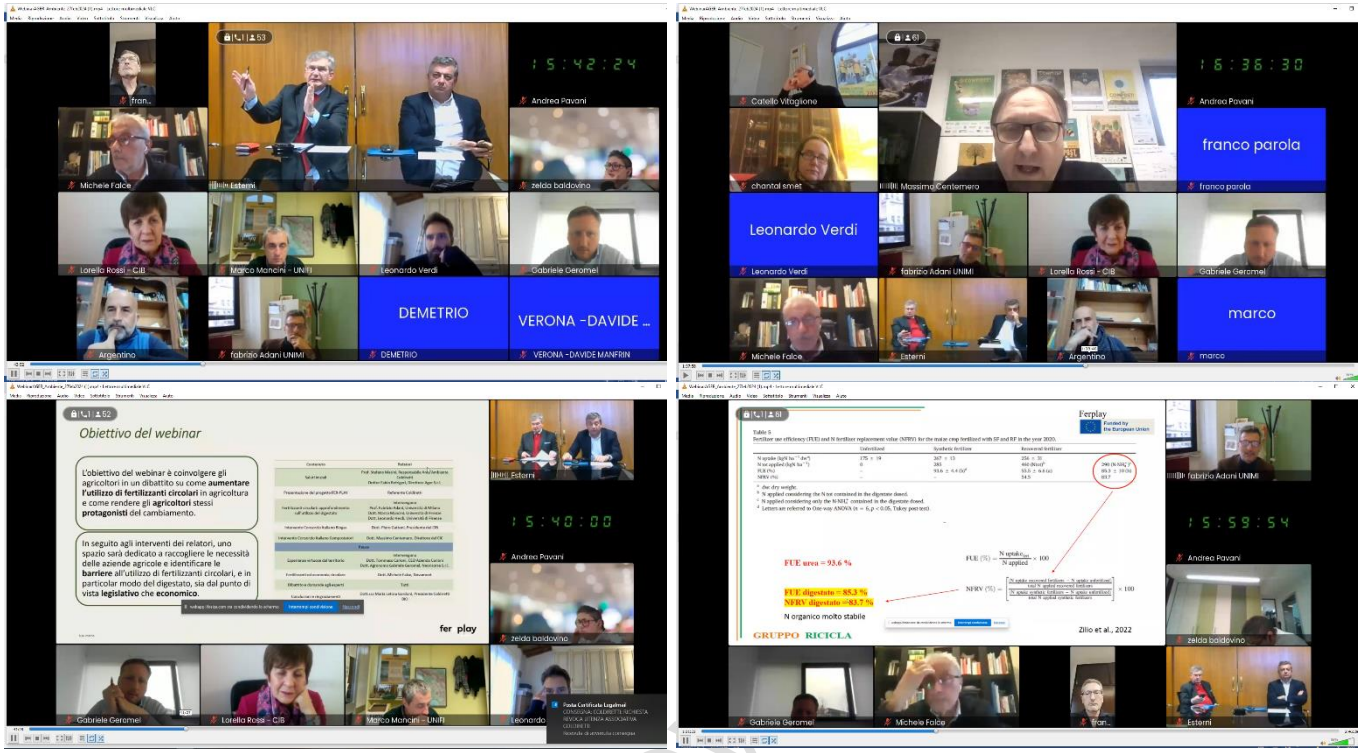
Per registrarsi all'evento è possibile compilare il form disponibile al seguente link: Registrazione al webinar

Funded by the European Union

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

On Figure 27 some screenshots taken during the webinar on 27/02/2024 are shown.

Figure 27. Screenshots from the webinar on 27/02/2024 in Italy



2.12.1. SUMMARY OF THE DISCUSSION

The meeting was a useful moment of technical discussion to encourage the use of circular fertilisers in agriculture in an attempt to make farmers themselves more and more protagonists of change. Particular attention has been given to identifying barriers to the use of circular fertilisers, and in particular, of digestate, both from a legislative and an economic point of view.

After an introduction to the FER-PLAY project, the speakers explained their experience on the use of digestate from agriculture subproducts. In particular it was highlighted the benefits for the farmer when installing an anaerobic digestion facility to treat their own subproducts from the livestock activity (effluents, plant biomass (waste or dedicated) and by-products of animal origin). Apart from the renewable energy produced, the recovery of nutrients thanks to the process is of utmost importance for becoming self-sufficient from the fertilising point of view.

The benefits of the anaerobic digestion process are:

- By modifying the composition of the nitrogenous forms (it transforms part of the organic nitrogen into ammoniacal nitrogen) it makes the nitrogen of livestock manure and biomass more "readily effective".

- The solid/liquid separation of digestates from livestock manure, together with the covering of storages, further enhance this effect, concentrating the most readily available ammoniacal nitrogen in the clarified fraction.
- It leads to a reduction in less stable organic matter.
- The process does not reduce the amount of nitrogen and phosphorus present in biomass.

The main features of digestate from livestock farms are:

- it contains stable organic matter, with a C/N ratio similar to that of soils (8 to 14) that promotes the formation of stable humus in the soil (higher humification index than in other matrices);
- it has the same overall nutrient endowment as the input matrices (it provides not only N, but also P and K as well as essential microelements), but as far as nitrogen is concerned, in a form that is more easily assimilated by crops;
- It is possible to optimise the distribution phase in the field through the use of high efficiency and low emissivity systems (net increase in the recovery of distributed nitrogen, reduction of NH3 emissions).

2.12.2. RELEVANT OUTCOMES FOR THE PROJECT

For a correct use of circular fertilisers, with a view to an increasingly sustainable agriculture, it is essential to:

- Knowledge of the characteristics of one's own soils.
- Knowledge of the peculiarities of their organic fertilisers.
- Provision of advanced variable rate fertilisation tools.
- Monitoring, prescribing and collection maps.
- Tools to contain nutrient losses from the soil system.

2.13. Event with end-users from Spain (20/03/2024)

Table 16. Event Main Features (Webinar in Spain on 20/03/2024)

Responsible partner:	ASAJA
Target public:	End-users (farmers and field technicians)
Type of event:	Webinar
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event
Main scope:	Fertilisation training
Location (Country acronym):	Madrid (ES)
Date (dd/mm/yyyy):	20/03/2024
Duration (hours):	1.5 hours
Impact:	45 participants (31 farmers/agriculture technicians, 6 fertiliser producers, 2 public administration)

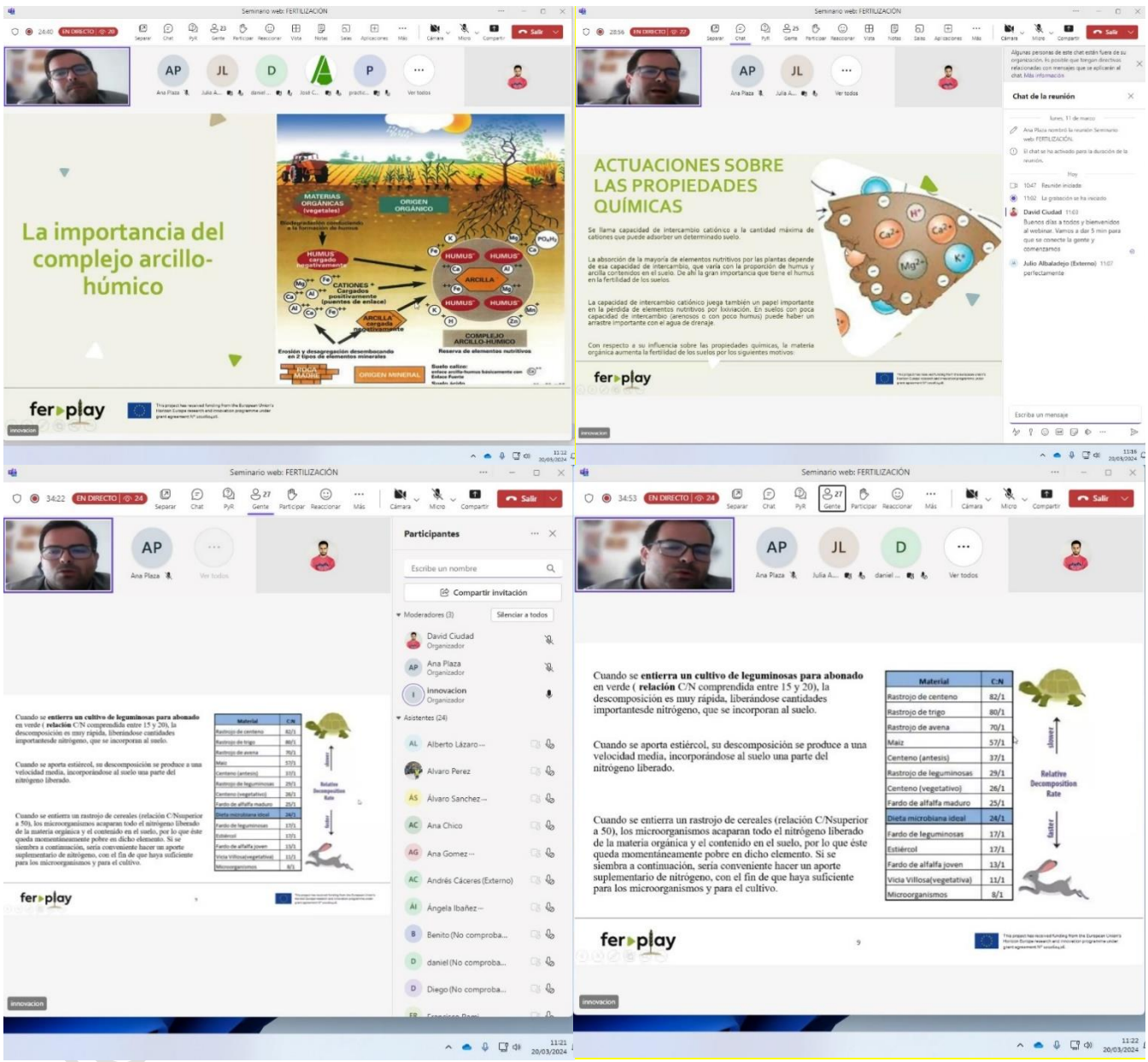
On 20/03/2024 in Spain, ASAJA organised a webinar with end-users which was an opportunity to provide some training on the most important hints related to the circular fertilisers tackled in the project.

The agenda of the Event is presented in the following Figure 28.

Figure 28. Agenda of the webinar on 20/03/2024 in Spain

The following Figure 29 represents the screenshots taken during the webinar which took place on 20/03/2024.

Figure 29. Screenshots from the webinar on 20/03/2024 in Spain



2.13.1. SUMMARY OF THE DISCUSSION

The webinar organised by ASAJA, discussed new fertilisation practices, specifically the 3 best rated circular fertilisers. They were presented to the farmers, technicians and authorities present, describing each one of them, characterising them and talking about their price, performance and availability.

2.13.2. RELEVANT OUTCOMES FOR THE PROJECT

As a result of the presentation made by Manuel Lucena (ASAJA), several questions arose about the fertilisers presented, questions about regulations and use, compatibility with organic crops, as well as possible impacts on the auxiliary fauna that they could produce. The acceptance of new fertilisers is a reality that the European agriculture sector will have to manage in the following years.

2.14. Event with end-users from Germany (11/06/2024)

Table 17. Event Main Features (Workshop Field Day in Germany on 11/06/2024)

Responsible partner:	NATURLAND
Target public:	Farmers, advisors, NGOs
Type of event:	Workshop - Field Day
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Part of the Naturland exhibition stand
Main scope:	Discuss on circular fertilisers, mainly on the main features of struvite and compost
Location (Country acronym):	Erwitte (DE)
Date (dd/mm/yyyy):	11/06/2024
Duration (hours):	2 hours
Impact:	47 participants (46 representatives of the agriculture sector)

On 11/06/2024 and 12/06/2024 in Germany, NATURLAND organised a field day with the agriculture sector, which was an opportunity to share some important information concerning struvite and compost.

The agenda of the Event is presented in the following Figure 30.

Figure 30. Agenda of the workshop field day on 11-12/06/2024 in Germany

NATURLAND INFORMATION

Naturland

Alternative und zirkuläre Dünger für den Öko-Landbau

Wir laden Sie herzlich ein zu unserer Infoveranstaltung am

11.06.2024 und 12.06.2024, jeweils 10:00 Uhr

Auf den DLG Feldtagen

Stand VG 25

Programm:

Vorstellung des FER-PLAY Projektes

Welche alternativen und zirkulären Dünger sind interessant für den Öko-Landbau?

Welche Hindernisse bestehen beim Einsatz?

Referent: Werner Vogt-Kaute, Öko-Beratungs Gesellschaft mbH

fer▸play

Funded by the European Union

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Geschäftsführer: Martin Bär

The following Figure 31 represents some photos taken during the field day which took place on 11/06/2024.

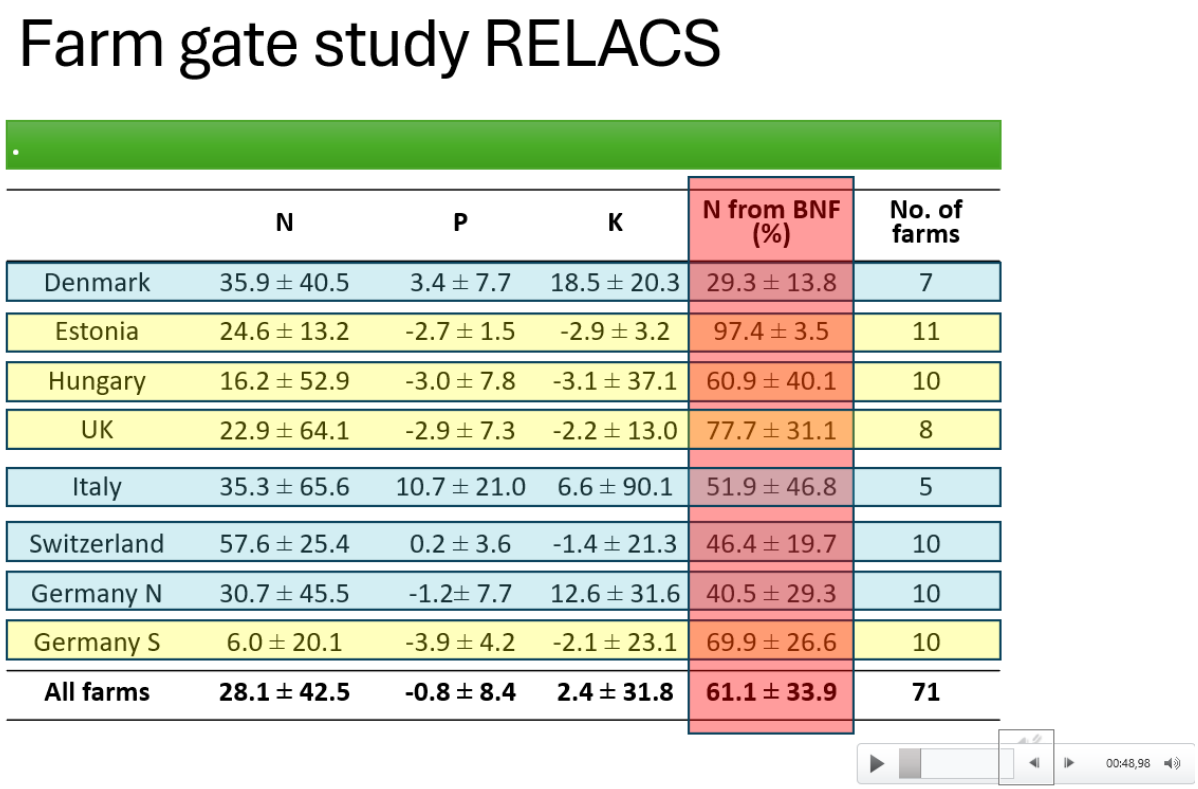
Figure 31. Photos from the workshop field day on 11/06/2024 in Germany

2.14.1. SUMMARY OF THE DISCUSSION

The discussion during the field day included the following points. First of all, the project FER-PLAY was presented, being the 7 value chains chosen for the Life Cycle Assessment a specific topic of discussion. Particular attention was paid for Struvite and compost.

Then, the situation on the agronomic management of the farm was discussed through a specific survey dedicated to analyse the farm gate balances. During this survey, phosphorus (P) was pointed out by the attendees as the main problem. The slide available in Figure 32 was used by NATURLAND during the event to present the nutrient balances.

Figure 32. Farm gate study presented on 11/06/2024 in Germany



Farm gate study RELACS

	N	P	K	N from BNF (%)	No. of farms
Denmark	35.9 ± 40.5	3.4 ± 7.7	18.5 ± 20.3	29.3 ± 13.8	7
Estonia	24.6 ± 13.2	-2.7 ± 1.5	-2.9 ± 3.2	97.4 ± 3.5	11
Hungary	16.2 ± 52.9	-3.0 ± 7.8	-3.1 ± 37.1	60.9 ± 40.1	10
UK	22.9 ± 64.1	-2.9 ± 7.3	-2.2 ± 13.0	77.7 ± 31.1	8
Italy	35.3 ± 65.6	10.7 ± 21.0	6.6 ± 90.1	51.9 ± 46.8	5
Switzerland	57.6 ± 25.4	0.2 ± 3.6	-1.4 ± 21.3	46.4 ± 19.7	10
Germany N	30.7 ± 45.5	-1.2± 7.7	12.6 ± 31.6	40.5 ± 29.3	10
Germany S	6.0 ± 20.1	-3.9 ± 4.2	-2.1 ± 23.1	69.9 ± 26.6	10
All farms	**28.1 ± 42.5**	**-0.8 ± 8.4**	**2.4 ± 31.8**	**61.1 ± 33.9**	**71**

As a next step the discussion was focused on the legal barriers for the use of struvite in the Organic Farming sector. In this sense, the application of struvite and its fertilising effect were presented to the participants. Farmers and advisers were interested in the subject, which enabled an intensive discussion during the field day.

2.14.2. RELEVANT OUTCOMES FOR THE PROJECT

- Most organic farmers are interested in using circular fertilisers because they are aware of current negative nutrient balances, especially in phosphorus.
- There is very little awareness and knowledge on struvite as an option by farmers and advisers. There should be more workshops on struvite.
- Farmers prefer to have regional supply of circular fertilisers instead of buying products from far away (hair, horn, potato water).
- Compost has a good reputation and farmers like to use it.

2.15. Event with end-users from Netherlands (13/06/2024)

Table 18. Event Main Features (Field Day in Netherlands on 13/06/2024)

Responsible partner:	INAGRO
Target public:	Agriculture sector
Type of event:	Workshop
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Joint with the initiative 'Boost pocketvergisting en nabewerking' (Boosting farm-scale anaerobic digestion and post-processing)
Main scope:	Two farmer visits with interaction
Location (Country acronym):	Reusel (NL) & Molenschot (NL)
Date (dd/mm/yyyy):	13/06/2024
Duration (hours):	12 hours (including 6-hour bus trip)
Impact:	26 participants of 38 registered (9 farmers+technicians; 4 representatives PA)

On 13/06/2024 in Netherlands, INAGRO organised a visit to 2 farms. Farming today is very different from farming in the past and nowadays farmers need to be aware of a lot of rules and legislation, while trying to have enough yield for a sufficient income. The 2 farmers visited are those who try to make their farms more future proof.

The invitation to the visit and the related agenda are presented in the following Figure 33.

Figure 33. Agenda of the farm visit on 13/06/2024 in Netherlands

Da: Inagro <info@inagro.be>
Inviato: mercoledì 15 maggio 2024 11:28
A: Inès Verleden
Oggetto: Uitnodiging - Innovatieve mestverwerkingstechnieken op het landbouwbedrijf - Donderdag 13 juni

Is deze mail niet goed leesbaar? Bekijk deze mail online

Innovatieve technieken voor mestbewerking

Bezoek aan Nederlandse landbouwbedrijven

op 13 juni vanaf 6.45 u in Inagro, Rumbeke-Beitem

Beste Inès,

Graag nodigen we je uit voor een inspirerend bezoek aan onze noorderburen, waar we een rondleiding krijgen in twee landbouwbedrijven. We brengen een bezoek aan een melkveehouder die zowel een **pocketvergister** als een **ammoniakstripper** heeft geïnstalleerd, en aan een aardappelteler die een **Manure Enricher** gebruikt, met behulp van plasmatechnologie. Door deze technieken wordt mest opgewaardeerd tot een meer hoogwaardige meststof met een hogere bemestingsefficiëntie.

In het kader van het demoproject **Boost pocketvergisting en nabewerking** willen we de landbouwsector bewuster maken van innovatieve technieken die helpen om zelfvoorzienender te worden op het gebied van energie en kunstmestvervangers. Zo kunnen we landbouwers en andere geïnteresseerden ondersteunen bij het maken van doordachte keuzes.

Praktische info

- Donderdag 13 juni 2024 vanaf 6.45 u
- Busreis met drie opstapplaatsen:
  - Parking Inagro, Ieperseweg 87 Rumbeke-Beitem
  - P+R Gentbrugge Arsenaal, Brusselsesteenweg 602 Gentbrugge
  - P+R Sint-Job-in-'t-Goor, Sint Jobsesteenweg Brasschaat
- Inschrijvingen voor de bus vanuit het oosten van Vlaanderen (met stops in Leuven, Lummen en Turnhout) lopen via Boerenbond.
- Deelname is gratis, maar inschrijven is verplicht vóór 10 juni.

Programma

6.45 u - Vertrek bus Inagro
7.45 u - Vertrek bus P+R Gentbrugge Arsenaal
9.00 u - Vertrek bus P+R Sint-Job-in-'t-Goor

10.00 u - Bedrijfsbezoek Van den Borne Aardappelen

- Presentaties door GEA, N2-Applied en Jacob Van Den Borne
- Bezoek pilootinstallatie Manure Enricher

12.00 u - Broodjeslunch

14.00 u - Bedrijfsbezoek V.O.F. Melkveehouderij Van Poppel

- Bezoek pocketvergister met ammoniakstripper

15.30 u - Einde bezoek
16.15 u - Aankomst bus P+R Sint-Job-in-'t-Goor
18.00 u - Aankomst bus P+R Gentbrugge Arsenaal
19.00 u - Aankomst bus Inagro

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Some photos taken during the farm visit are available in Figure 34.

Figure 34. Photos from the farm visit on 13/06/2024 in Netherlands

2.15.1. SUMMARY OF THE DISCUSSION

The first farmer visited on 13/06/2024 was a potato farmer with fields in both the Netherlands and in Belgium. He mentioned the different rules across the border and the difficulties that this poses. In his farm management, he focuses on the importance of the soil health and life. Mineral fertilisers do not promote soil fertility, so the current agricultural practices are overexploiting the soil. The potato farmer advocates applying organic manure and fertilisers at the right time and with the right technique. By gathering data, logging various parameters and sampling the soil and crops, he aims to follow up the plots, linking the data to yields and thus continuing to learn the best soil practices. The knowledge and results he gathers, he wants to share with the agricultural sector.

In the afternoon, a mixed farm with dairy cattle and arable farming was visited by attendees. This farm with 200 dairy cows had to adapt the stable to comply with emission reductions and permit

conditions. Next to closing off the slatted stable floor, two manure robots collect the manure on the floor, providing the farm with fresh manure for the farm-scale anaerobic digester. This technique provides the farm with electricity and heat, that can be used for separating the digestate and further treating the liquid fraction of the digestate in the ammonia stripper, to produce ammonium sulphate, which could replace mineral fertiliser. The solid fraction of the digestate is used as bedding material for the cows. The focus of the discussion was that farms need to find the most suitable solution for their farm to comply with the legislation, while also taking into account the business model.

2.15.2. RELEVANT OUTCOMES FOR THE PROJECT

- The importance of soil fertility was stressed, and the use of organic fertilisers instead of mineral fertilisers to improve the soil health. However, these organic fertilisers need to be applied with precision fertilisation, meaning that it is needed at the right time with the right technique. So, the project results on the selected organic fertilisers that are high in organic matter, can be of great relevance here.
- It would help the farmers if the LCA results are processed in the policy recommendations, hopefully increasing the techniques allowed to integrate on the farm, to reduce emissions.
- Also the agricultural industry is interested in circular fertilisers and the results of the project. If the business model proves feasible, they are also willing to invest in the innovative techniques to produce them.

2.16. Event with end-users from Belgium (13/08/2024)

Table 19. Event Main Features (Field Trial Visit in Belgium on 13/08/2024)

Responsible partner:	INAGRO
Target public:	Mainly end users, but everyone can join
Type of event:	Workshop/ Field trial visit
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Joint with 'ReNu2Cycle', 'WalNUT', 'NUTRI-KNOW' and 'Novafert'
Main scope:	Field trial visit with fertilisation demonstration
Location (Country acronym):	Langemark-Poelkapelle (BE)
Date (dd/mm/yyyy):	13/08/2024
Duration (hours):	2.5 hours

Impact:	31 participants (6 farmers/technical advisors; 1 representative of PA; 2 fertiliser producers)

On 13/08/2024 in Belgium, INAGRO organised a field trial visit with the main scope to demonstrate the use of circular fertilisers.

The invitation to the visit and the related agenda are presented in the following Figure 35.

Figure 35. Agenda of the farm trial visit on 13/08/2024 in Belgium

Some photos taken during the field trial visit on 13/08/2024 are shown on the following Figure 36.

Figure 36. Photos from the farm trial visit on 13/08/2024 in Belgium

2.16.1. SUMMARY OF THE DISCUSSION

INAGRO invited stakeholders over to a field trial with circular fertilisers and/or the use of zeolites. The guests could see the trial in potatoes, as well as a specialised fertiliser machine with which INAGRO applies the circular fertilisers in small trial plots on the field.

INAGRO presented background info on the projects, previous trial results, where the circular fertilisers come from, how the fertilisation dose is calculated, legislation, and answered to the stakeholders' questions as well as asked their feedback on the approach.

Overall, the farmers are quite interested and could see that the results of the use of circular fertilisers are similar to the use of mineral fertilisers. However, once more the biggest barrier to use these circular fertilisers in Flanders is legislation. As Flanders is a Nitrate Vulnerable Zone with a high intensity of animal husbandry, they can easily fill in the 170 kg N/ha limit of manure with animal manure of their own or surrounding farms. So, as long as (some of the) circular fertilisers are not seen as mineral fertiliser replacements above this Nitrate Directive limit, they have no use for it. In that sense, INAGRO reminded that the European Commission released a renewed RENURE-proposal, which Flanders, Wallonia and Belgium support, and which can mean a notable change on the use of circular fertilisers.

2.16.2. RELEVANT OUTCOMES FOR THE PROJECT

Some relevant outcomes of the field trial visit for the project are:

- Once more, farmers show interest in the circular fertilisers, but the RENURE-proposal will play a big role in the implementation in Flanders and Belgium.
- Interest from the farmers and trust is higher when something can be seen visually shown, for example a field trial and machine demonstration.
- A farmer's testimonial could also help to build trust.

2.17. Event with end-users from Spain (22/10/2024)

Table 20. Event Main Features (Webinar in Spain on 22/10/2024)

Responsible partner:	ASAJA
Target public:	Farmers
Type of event:	Webinar
Modality:	Online

Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated Event
Main scope:	Discussion with end-users about the benefits of circular fertilisers
Location (Country acronym):	ES
Date (dd/mm/yyyy):	22/10/2024
Duration (hours):	1.5 hours
Impact:	141 participants (119 farmers/technicians; 10 fertiliser producers; 1 representative of PA)

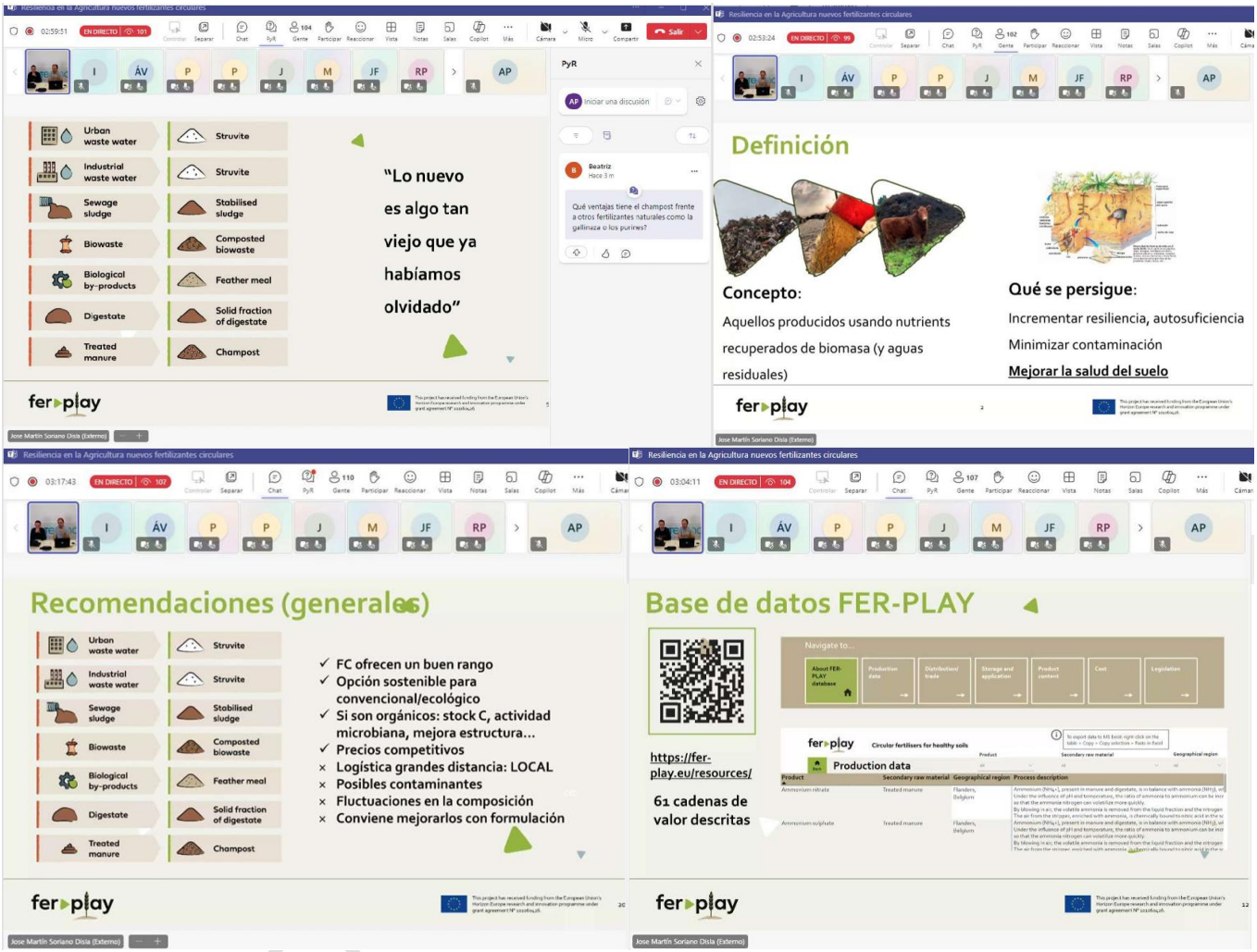
On 22/10/2024 ASAJA organised, in collaboration with CETENMA, a webinar for farmers with the main scope to discuss with them about the benefits that circular fertilisers can provide for soil health and agricultural practices.

The agenda of the Event is presented in the following Figure 37.

Figure 37. Agenda of the webinar on 22/10/2024 in Spain

Some photos taken during the webinar on 22/10/2024 are shown on the following Figure 38.

Figure 38. Photos from the webinar on 22/10/2024 in Spain



2.17.1. SUMMARY OF THE DISCUSSION

At the beginning of the webinar, ASAJA presented the FER-PLAY project. Then CETENMA the importance of combining traditional knowledge with modern technologies and presented a database of more than 60 alternative fertiliser value chains that were assessed by the project (available on the website), including information on production, distribution and legislation.

CETENMA highlighted that the surveys carried out to the farmers regarding the social acceptance of circular fertilisers concluded that, although the majority of farmers surveyed consider that these fertilisers can improve soil health, their willingness to change is moderate. Reliance on technical advisors as the most trustworthy source of information on fertilisers was emphasized and therefore, they represent an important target group to be trained.

The meeting also included a comparative analysis of different types of fertilisers, such as mushroom spent substrate and other circular fertilisers, highlighting their benefits and challenges. A hybrid approach to fertilisation, combining circular and synthetic fertilisers to maximise nutrient availability, was suggested and discussed among participants.

2.17.2. RELEVANT OUTCOMES FOR THE PROJECT

The main outcome from the events is that more awareness raising on the benefits of circular fertilisers is required since their strengths compared to conventional own are still not well-known by part of the agricultural sector.

2.18. Event with end-users from Italy (24/10/2024)

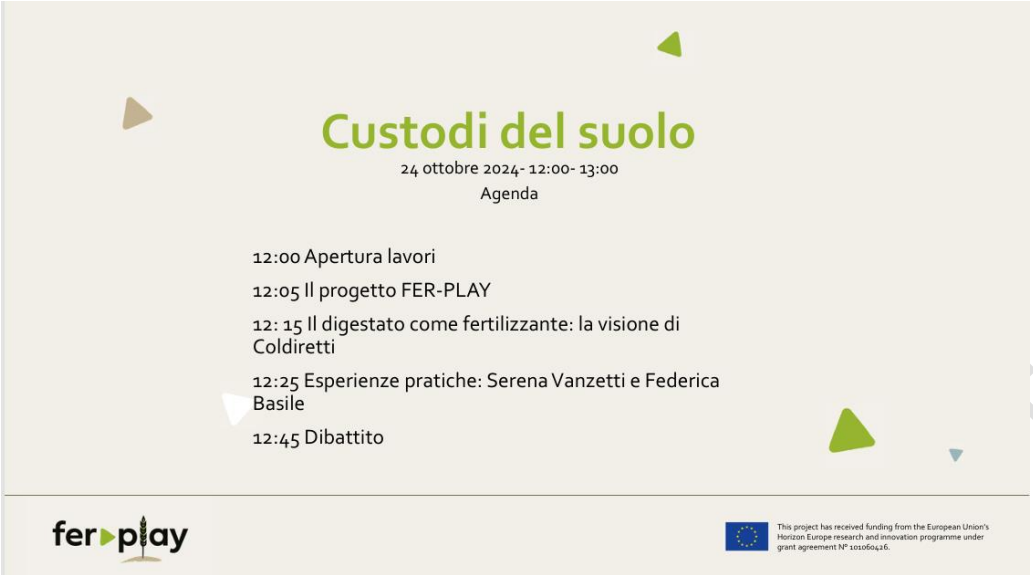
Table 21. Event Main Features (Webinar in Italy on 24/10/2024)

Responsible partner:	COLDIRETTI
Target public:	End-users
Type of event:	Webinar
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY Dedicated
Main scope:	To inform about the project results, provide farmers with real-based examples of digestate producers, collect opinions from farmers on the use of circular fertilisers and necessary incentives to foster the adoption
Location (Country acronym):	IT
Date (dd/mm/yyyy):	24/10/2024
Duration (hours):	1 hour
Impact:	84 participants (84 farmers/technicians/member of agriculture associations)

On 24/10/2024 COLDIRETTI organised a webinar for the end-users, with the objective to inform them about the project results, to provide farmers with real-based examples of digestate producers, to collect opinions from farmers on the use of circular fertilisers and necessary incentives to foster their adoption.

The agenda of the Event is presented on the following Figure 39.

Figure 39. Agenda of the webinar on 24/10/2024 in Italy



Some photos taken during the webinar on 24/10/2024 are shown on the following Figure 40.

Figure 40. Photos from the webinar on 24/10/2024 in Italy

2.18.1. SUMMARY OF THE DISCUSSION

The webinar followed the foreseen agenda, with the following speeches:

- Dr. Gentili from COLDIRETTI welcomed the participants and introduced the agenda for the meeting. She outlined the main objectives of the gathering, focusing on the importance of sharing practical experiences and discussing the challenges related to the use of digestate and bioenergy.

- Dr. Prociuc from COLDIRETTI presented a summary of the FER-PLAY project through a brief PowerPoint presentation. He explained how the project proceeded in the collection and selection of the fertilisers value chains, illustrated the results of the co-creation process done so far, and introduced the sustainable use of digestate and renewable energy in the agricultural context, with particular attention to practices that can improve efficiency and business sustainability.

- Dr. Ciancaleoni from COLDIRETTI explained the specificities of the Italian context where the biogas plans born in the last years created a great availability of digestate which has been suddenly appreciated, not only for its beneficial effects as fertilisers, but also because this value chain improve the overall environmental sustainability of the livestock sector. Nevertheless, this digestate is still considered by law a by-product and not a fertiliser and Coldiretti is addressing this issue at both national and European level.

- Two testimonials from agricultural cooperatives which produced agro-zootechnical digestate:

    - Serena Vanzetti (Cooperativa Speranza, Piemonte – Northern Italy) described the experience of the Cooperativa Speranza in northern Italy, which has invested in biogas and biomethane plants. She highlighted how digestate is used to improve soil fertility, contributing to nearly eliminating traditional tillage and reducing environmental impact. The cooperative, consisting of eight farms, has achieved remarkable results in terms of crop yields and sustainability.

    - Federica Basile (Cooperativa Fattorie della Piana, Calabria, Southern Italy) presented the experience of the Cooperativa Fattorie della Piana in Calabria, where biogas plants, installed in 2008, utilise local by-products such as manure, whey, and citrus pomace to produce energy. She emphasised the cooperative's circular approach, which reuses digestate for fertilising its members' fields. Federica pointed out how the cooperative serves as an example of integration between agricultural production and environmental sustainability.

    - Both farmers emphasised the importance of digestate as a resource for organic farming and of creating synergies among farmers and among other actors of the territory, and the

challenges arising from the need to adapt regional regulations to the specific needs of the territory.

After the presentations, the discussion was promoted and a Q&A session started.

Q1: How do you manage the issue of digestate transport, considering the distance and associated costs?

A1 (Federica): We use a separator to divide the solid from the liquid part. The liquid is not transported beyond 50 km for economic reasons. We try to optimise transport trips, organising them to be fully loaded both ways. Costs range from 300 to 400 euros per trip for distances up to 150 km.

Q2: Regarding the use of other materials for feeding biogas, do you use other materials besides manure and slurry to feed your biogas plants?

A2 (Serena): 70% of our biogas is fed by manure and slurry, but we also use agricultural by-products such as sorghum and pomace. We have created a circular economy with nearby farms, which supply us with materials and receive digestate in return as fertiliser.

Q3: Is specific training necessary for using digestate as fertiliser?

A3 (Federica): Initially, in 2008, our experience was limited, so we learned on the job. Digestate is similar to manure and slurry, so the transition was relatively easy. However, greater training is needed for agronomists, as they often lack specific skills regarding the use of circular fertilisers.

Q4: Is it useful to raise consumer awareness about agricultural products made with circular fertilisers like digestate?

A4 (Federica): It is challenging to directly raise consumer awareness, as they often do not pay attention to these details. However, collaborating with organic brands could be an effective strategy. Another approach is to work with the relevant authorities to improve regulations and promote the use of circular fertilisers.

Q5: About regulatory limits, do current regulations pose an obstacle to using digestate as fertiliser?

A5 (Federica): Yes, there are regulatory limits that slow down the adoption of digestate. The lack of clarity on some aspects, as well as regulations which do not take into account the great variability of the pedoclimatic condition of the Italian territory, make it difficult to adopt new solutions, and we hope for improvements in the future.

Q6: Are the biogas-digestate plant viable in mountain context where there are all small farms, few spaces for manure management, not very comfortable streets?

A6(Federica): Yes, small plants are possible and, as far as I know, there are still incentives for them. You should have several companies cooperating that deliver to the same plant and then redistribute the digestate. And if you really cannot dispose of the digestate, you could bag it for

A6(Ciancaleoni): Added that biogas technology, initially developed for large-scale plants, is now also applicable to smaller plants, which could be ideal for small livestock farms. He highlighted the importance of exploring the possibility of creating cooperative plants or energy communities, which could benefit from incentives and optimise resource management. Small-scale plants are more efficient in utilising thermal energy, an aspect often overlooked in larger facilities.

Further, given the high number of registered farmers and consequently the likelihood that not all of them could express their opinion during the meeting, a questionnaire to collect their knowledge and thoughts regarding circular fertilisers has been administered and some answers discussed during the Q&A session. Among the 76 effective participants, 48 decided to fill in the questionnaire.

Among these respondents, there is a medium level of knowledge of circular fertilisers. On a scale from 1 (lower level) to 10 (maximum level), the most selected rates are 4-5-6-7. In line with this result, just 29,2% of respondents already use circular fertilisers; another 25% doesn’t know and about half of them do not use them.

Indeed, 38 out of 48 respondents declared to be very interested in receiving more information on circular fertilisers. Moreover, asked to indicate which factors could incentivise the adoption of circular fertilisers, the respondents selected mainly the interaction with other farmers who already use them and participating in training activities on the use of circular fertilisers. The first results are also confirmed by the 64.6% of respondents who declared that the experience of other farmers using circular fertilisers could convince them in using the alternative products, followed by trusted advisors (43.8%). At the same time, respondents show a lower level of knowledge of the benefits of circular fertilisers and are less convinced that circular fertilisers are effective alternatives. Moreover, they are not fully aware about the regulations and the availability of circular fertilisers thus are not able to say whether these aspects affect the adoption of circular fertilisers. Dealing with regulation, however, the experience of the farmers involved as speakers confirmed that it is a barrier to the adoption of circular fertilisers.

Respondent considered particular effective to foster the adoption of circular fertilisers raising consumers awareness on products realised with circular fertilisers; however, the farmers involved as speaker during the meeting, who already produces and uses circular fertilisers (in particular digestate), pointed out that consumers already receive lot of information, and it is difficult to sensitise them also on this aspect.

COLDIRETTI expressed gratitude to all participants and reminded them that the topics discussed during the meeting are available on the FER-PLAY website. She also assured them that all links mentioned in the presentation will be sent via email to facilitate access to the mentioned topics.

2.18.2. RELEVANT OUTCOMES FOR THE PROJECT

The main outcomes of the co-creation event are synthesised below:

More dissemination and training material are necessary: The level of knowledge of circular fertilisers is still limited thus more effort is necessary to disseminate them. Moreover, farmers, especially those looking to adopt these sustainable practices, express the need for more in-depth skills and knowledge to optimise the use of circular fertilisers. Farm advisors should be intercepted a key target group for training, even before farmers.

- Interest from Farmers: The testimonies of two entrepreneurs sparked considerable interest among the attending farmers. Their practical experiences with digestate and bioenergy demonstrated the tangible benefits and feasibility of these innovative practices. Moreover, through the questionnaires, the farmers said that it was mainly their colleagues who could convince them to use circular fertilisers. This suggests that the collection and dissemination of real-based stories from farmers could be a strategy to narrate project results.

- Transport Cost: Transporting costs are a potential barrier to the adoption of circular fertilisers. Transporting digestate presents high costs and logistical challenges, particularly for farms operating in rural areas. These issues significantly impact operational costs and, consequently, the final price of agricultural products. It is crucial to develop solutions to optimise transport and reduce associated costs.

- Foster the dialogue with public authorities: Regulations and still a limit for the adoption of circular fertilisers. This relates to issues as digestate from agro-zootechnical waste which is still considered a by-product and not a fertiliser, as well as to limits in the use of some substances which do not take into account the pedoclimatic differences within a Country. What emerges is the need of a more effective dialogue with public authorities and institutions for more flexible regulations which could foster the adoption of circular fertilisers.

- Consumer Awareness: Raising awareness among final consumers not only promotes informed choices but can also stimulate growing demand for products cultivated using sustainable methods. Albeit the products packaging often presents space limitations, making it difficult to provide detailed information about the growth process and the ingredients used, addressing consumers can contribute to positive change in the agricultural sector, encouraging more responsible practices.

3. Co-creation events with producers

The fertilisers producers are the second main group of stakeholders to whom FER-PLAY focus their activities. The co-creation events dedicated to them up to now have dealt with two main aspects: (1) the technical, commercial and regulatory barriers for the market uptake of circular fertilisers; (2) the strategies to overcome the social acceptance that circular fertilisers producers find when commercialising their products.

The following Table 22 provides the main data related to the commitments from these events and the achievements obtained.

Table 22. Commitments linked to the co-creation activities dedicated to circular fertiliser producers

Commitment targeting the producers	Achieved value
4 multi-topic seminars	5
120 fertiliser producers engaged in seminars	159
Number of participants to the events from the 3 target groups	182
Total number of participants to the seminars (including those beyond targeted stakeholders)	323
5 focus-groups	5
10 external stakeholders involved in focus-groups	31
Number of external stakeholders involved in the focus groups representing the 3 target groups	19
Total number of participants to the focus groups (including those beyond targeted stakeholders)	72

Main outcomes obtained from these meetings with the producers sector reflect the necessity of clarification of some aspects from the legislation, overcoming social acceptance mistrust and making the production cost-effective. The figure of the technical advisor inside the producers staff is highlighted as a key element to improve the relationship with the end-user (overcome the mistrust) and therefore to foster the market. The project guidelines (D3.2 “Guidelines for fertiliser producers”) have been designed as a list of key messages resulting from these discussions and aiming to provide producers with instruments to solve the main barriers that they encounter when bringing a circular fertiliser to the market.

As detailed in the previous table, a total of 10 events, organised by EBA and CIC, have been carried out, counting with 395 participants in total. The following sections detail the events features and main outcomes resulting from each of them.

3.1. Event with producers from EU (20/09/2023)

Table 23. Event Main Features (Multitopic seminar in Belgium on 20/09/2023)

Responsible partner:	EBA
Target public:	Producers, circular fertilisers stakeholders
Type of event:	Multi-topic seminar
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Joint event with EU project Ferticycle
Main scope:	Discussing technical, commercial and regulatory implications for circular fertilisers at EU regulatory level
Location (Country acronym):	BE
Date (dd/mm/yyyy):	20/09/2023
Duration (hours):	1 hour 20 minutes
Impact:	43 participants (2 fertiliser producers; 3 representative PA)

On 20/09/2023 EBA co-organised with the sister project Ferticycle a workshop at the European Sustainable Nutrient Initiative (ESNI) Conference, held physically in Brussels. The workshop was titled “New bio-based fertilisers from secondary raw material upcycling – technical, commercial and regulatory implications”, being the first multi-topic technical seminar organised withing WP3, with the aim to gather feedback on commercial and regulatory drivers for using and raising awareness regarding circular fertilisers. The workshop consisted of two presentations of the aims and goals of FER-PLAY and Ferticycle projects, followed by 4 short presentations of four different circular fertilisers production (phosphorous fertiliser from wastes, peat-free organo-mineral fertilisers from recyclable bio-waste, struvite and digestate). A final discussion with audience and speakers, involving co-creation tools, was moderated by EBA. The attendance was high.

The agenda of the Event is shown in the following Figure 41.

Figure 41. Agenda of the part of the meeting dedicated to FER-PLAY on 20/09/2023 in Belgium

European Sustainable Nutrient Initiative,
20 September 2023, 09:00 - 17:30 CET
FEB-VBO, Rue Ravenstein 4, 1000, Brussels (BE)

Preliminary Programme

09:00 - 09:30	Welcome and introduction to the ESNI Community by *Prof. Erik Meers, UGhent and Ana Robles Aguilar, BETA- UVIC*
09:30 - 10:30	• Paul Webb, *Head of the European Research Executive Agency, European Commission* • State of play on Fertilising Product Regulation in terms recycled nutrients, *Theodora Nikolakopoulou, DG GROW, European Commission* • Nutrients and their interaction with the environment, *Tue Rasmussen Fosdal, DG ENV, European Commission* • Nutrient (re)cycling in sustainable agriculture, *Luis Sanchez-Alvarez, DG AGRI, European Commission*
10:30 - 11:00	Nutri2Cycle and ReNu2Cycle: policy on bio-based fertilisers, *Prof. Erik Meers, UGent and Laura Van Scholl, NMI*
11:00 - 11:25	Project Pitches and Coffee Break
11:25 - 12:45	Parallel workshops: Session 1

Policy perspective	Technology	Stakeholders perspective
Towards a harmonized approach on sustainability assessment of nutrient recovery pathways: setting LCA methodological priorities *Organised by NOVAFERT*	Technologies for nutrient recovery from wastewater *Co-organised by WALNUT and ULTIMATE*	Profitability and market acceptance of bio-based fertilizers *Co-organised by FERTIMANURE and FERTICYCLE*

12:45 - 13:45	Lunch and poster session

13:45 - 15:05	Parallel workshops: Session 2		
Policy perspective	**Technology**	**Stakeholders perspective**
New bio-based fertilisers from secondary raw material upcycling – technical, commercial and regulatory implications *Co-organised by FERTICYCLE and FER-PLAY*	Standardise algae circular products to market in agricultural applications *Co-organised by EU4Algae and SEMPRE-BIO*	ReNu2Cycle: Closing the nutrient cycle to provide sustainable, bio-based fertilizer in NWE *Co-organised by ReNu2Cycle*
15:05 - 15:20	Short break		
15:20 - 16:40	Parallel workshop: Session 3		
Policy perspective	**Technology**	**Stakeholders perspective**
Co-creation workshop towards optimizing nutrient flows and budgets in sustainable agriculture: mitigation measures, KPIs and modelling *Co-organised by NUTRIBUDGET and NUTRI2CYCLE*	Bio-based fertilisers recovery from manure and fishery wastes: lessons learnt and future perspectives *Co-organised by FERTIMANURE and SEA2LAND*	Bringing to market high-quality green, healthy food, feed and cosmetics from algae ... with a twist *Organised by ALGAEPROBANOS*
16:40 - 17:20	Wrap up and Plenary Forum of ESNI, *Prof. Erik Meers, UGhent and Ana Robles Aguilar, BETA- UVIC*		
17:20	Networking drink		

The event is organised by:

ESNI – European Sustainable Nutrient Initiative

in collaboration with:

AlgaePro BANOS, EU4Algae, fer▸play, FertiCycle, FERTIMANURE, Novafert, Nutri2Cycle, NutriBudget, Interreg North-West Europe Co-funded by the European Union – ReNu2Cycle, SEA2LAND, SEMPRE-BIO, ULTIMATE Water Smart Industrial Symbiosis, WALNUT

Parallel workshops: Session 2

Policy perspective

New bio-based fertilisers from secondary raw material upcycling – technical, commercial and regulatory implications

The workshop will tackle technical, commercial and regulatory implications for selected bio-based fertilisers from secondary raw materials: treated bio-waste, peat-free organo-mineral fertilisers, struvite from industrial and urban waste waters, solid faction of digestate. We will also also address the need for competence-building for researchers, producers, advisors and end-users of new bio-based fertilisers. At the end of the session, speakers will participate in a panel debate to engage with workshop participants in co-creation activities to help assess the situation that bio-based fertilisers' producers and end-users face nowadays.

Moderator: Mieke Decorte, European Biogas Association (EBA)

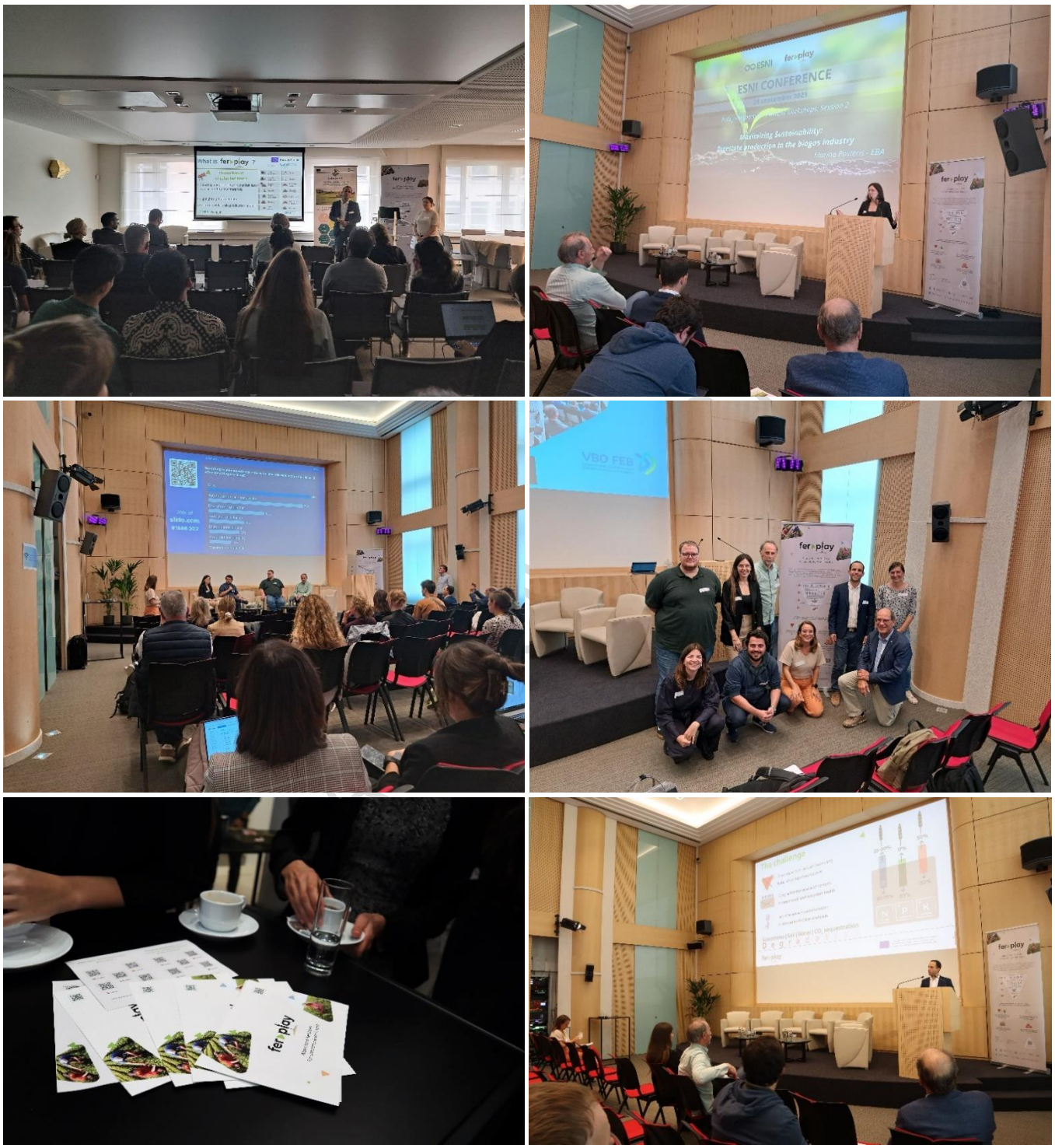
Speakers:

- Introduction to the FertiCycle Marie S. Curie Training Network, *Lars Stoumann Jensen, Professor, University of Copenhagen, Denmark*
- Introduction to the FER-PLAY project, *Hasler Iglesias Yáñez, CETENMA, Spain*
- Could treated bio-wastes be a sustainable solution to the worldwide need for phosphorous fertiliser, *Pietro Sica, PhD student, University of Copenhagen, Denmark*
- Designing novel peat-free organo-mineral fertilisers from recyclable bio-waste, *Tomas Sitzmann, PhD student, University of Turin, Italy*
- Technical and Commercial challenges for Struvite, *Wim Moerman, Nuresys, Belgium*
- Maximizing Sustainability: Digestate production in the biogas industry, *Marina Pasteris, European Biogas Association (EBA), Belgium*

Technology

In Figure 42 some photos taken during the meeting are presented.

Figure 42. Pictures from the Multi-topic seminar on 20/09/2023 in Belgium



3.1.1. SUMMARY OF THE DISCUSSION

EBA (Mieke Decorte, Technical & Project Manager) welcomed the audience to the workshop co-organised by FER-PLAY and Ferticycle projects. Two short presentations about the two projects co-organising the workshop were made. CETENMA introduced the overall scope and content of the project. After that, four presentations regarding circular fertilisers were delivered:

Ferticycle (Pietro Sica, PhD student, University of Copenhagen, Denmark) presented technical findings related to treated bio-wastes be a sustainable solution to the worldwide need for phosphorous fertiliser. Highlights of the presentation include:

- Most of the European P demand could be covered with a circular economy approach. We need better allocation and redistribution of resources and to transform these biowastes into efficient biobased P fertilisers.
- In order for P rich biowastes to match the efficiency of mineral P fertilisers, pretreatments such as acidification are required to enhance their P solubility.
- P diffusion when placing digestate solid fraction (DSF) and meat and bone meal (MBM) in the soil were studied. Increase on diffusion after acidification was found.
- Technical challenges regarding the commercialisation of these products mentioned the limit on nutrients application because of legislation and the need of further research.

Ferticycle (Tomas Sitzmann, PhD student, University of Turin, Italy) also presented technical and regulatory findings related to novel peat-free organo-mineral fertilisers from recyclable bio-waste. Highlights of the presentation include:

- Bio-wastes have potential to replace peat in OMFs, particularly by analysing their circular value.
- Low organic C influences mineral P rather than mineral N.
- Bio-waste organo-mineral fertilisers are not recommendable for short-growing crops.
- Bio-waste organo-mineral fertilisers may increase ammonia losses due to high pH.
- Further/circular processing may be necessary in biowaste to increase their efficacy.

NuReSys presented technical challenges and opportunities for struvite originated from urban and industrial wastewater, two of the seven value chains selected in FER-PLAY. Highlights of the presentation include:

- Struvite technology is well established mainly municipal / few industrial applications.

- Though challenge is in producing MARKET PULL product: size / morphology / hardness = UNIFORMITY
- Post processing will be key = grinding / additives / re-granulation / biological activation.
- Centralisation of the produce for effective sales.
- Need of uniform legislation EU wise
- Increase economy of scale to obtain Market Pull Product = uniform product in large quantities = N-P-Mg source

FER-PLAY (EBA) presented technical, commercial and regulatory challenges and opportunities for the digestate. There are many various for the commercialisation or application of digestate depending on the feedstock used. Highlights of the presentation include:

- 27.1 Mt (dry basis) of digestate were produced in Europe in 2021.
- Digestate can already displace: 13.4% Nitrogen-based synthetic fertilisers (Haber–Bosch-derived), 9.4% phosphorus fertilisers and 5.1% potassium fertilisers.
- 8.8 Mt of CO_2 equivalent savings could be obtained when replacing synthetic nitrogen fertilisers with digestate in 2021 in Europe.
- Digestate has numerous applications and novel uses.
- Principal challenges are technology development for circular uses of digestate and legislative frameworks.

After the presentations, a panel discussion including interactions with audience and speakers was conducted. The audience was invited to interact via Sli.do as part of the technical discussion.

Question 1: According to your experience, choose the most relevant factors when selecting a fertiliser: (max 3)

- Form (e.g. solid, liquid)
- Ease of use / application
- Currently used machinery
- Nutrient content and composition
- Cost

- Environmental aspects
- Production sustainability

To speakers: How does your circular fertiliser stand in relation to these 3 most mentioned factors (result 1, result 2, result 3)? Can you think on one extra attractive property or impact of your circular circular fertiliser for farmers / end-users?

Question 2: Select 3 most relevant commercial difficulties that you consider important to tackle for allowing the commercialisation of circular fertilisers.

- Legislation
- Social acceptance
- Availability (locally or regionally)
- Cost
- Lack of subsidies
- Lack of scientific evidence
- High rigorous quality standards

To speakers: Can you name one commercial difficulty that you consider important to tackle for allowing the commercialisation of the circular fertiliser?

Question 3: What are, according to you, the biggest legislative barriers for usage of circular fertilisers?

To speakers: What are the biggest challenges that your presented circular fertiliser faces in terms of legislation?

Question 4: How to overcome barriers in terms of legislation related to circular fertiliser?

To speakers: How to overcome barriers in terms of legislation related to your circular fertiliser?

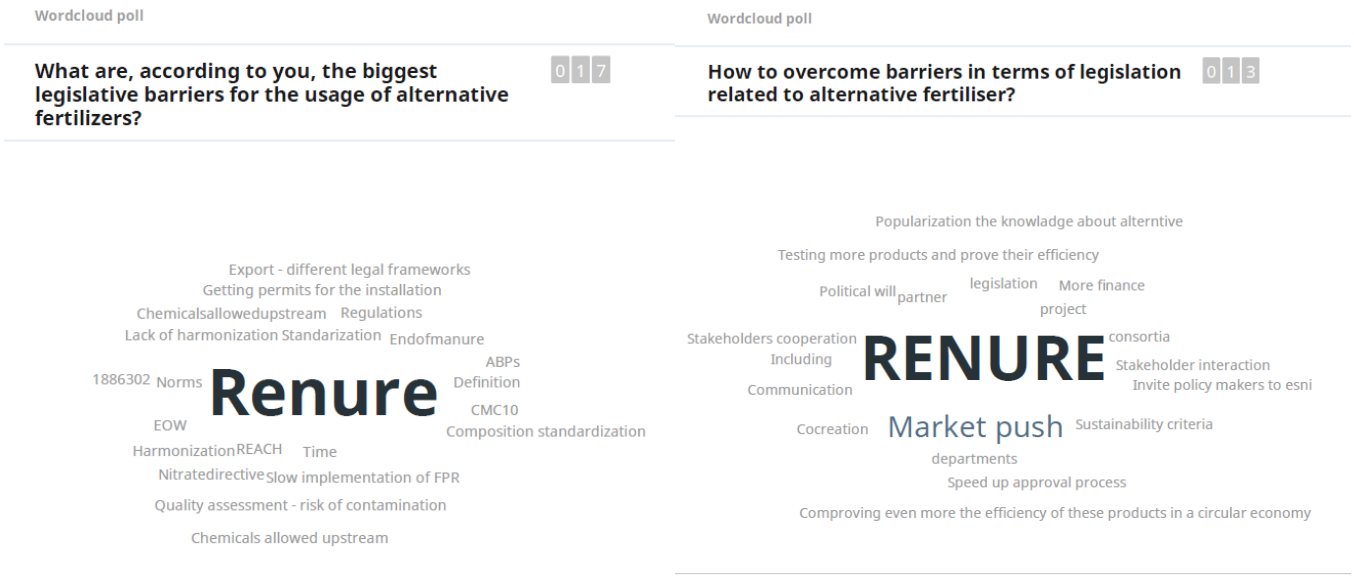
The list of attendees showed that the audience was split between researchers, fertiliser producers or other types of stakeholders (biogas sector and associations), including policy makers.

Results of the Sli.do are shown in the following Figure 43 and Figure 44. In summary, most relevant factors when selecting a fertiliser are cost, nutrient content and composition, ease of use/application, environmental aspects. The 3 biggest commercial difficulties were without

surprise: legislation by far, cost and social acceptance. The biggest legislative barriers mentioned: RENURE/Nitrate Directive as the main selected barrier and end-of-waste criteria.

Figure 43. Results of Question 1 (left) and Question 2 (right)

Figure 44. Results of Question 3 (left) and Question 4 (right)



3.1.2. RELEVANT OUTCOMES FOR THE PROJECT

- According to the debate these are the main outcomes of the event:

- Most relevant factors when selecting a fertiliser are: cost, nutrient content and composition, ease of use/application, environmental aspects.
- There are three most barriers for commercialisation of circular fertilisers are: legislation by far, cost and social acceptance.
- The biggest legislative barriers mentioned are RENURE/Nitrate Directive and the End-of-Waste criteria.
- Incentives are important to foster the deployment of circular fertilisers (CAP, financial incentives, other targets for recovery of nutrients, they do exist sometimes at national level).
- Awareness raising to policy makers is needed.

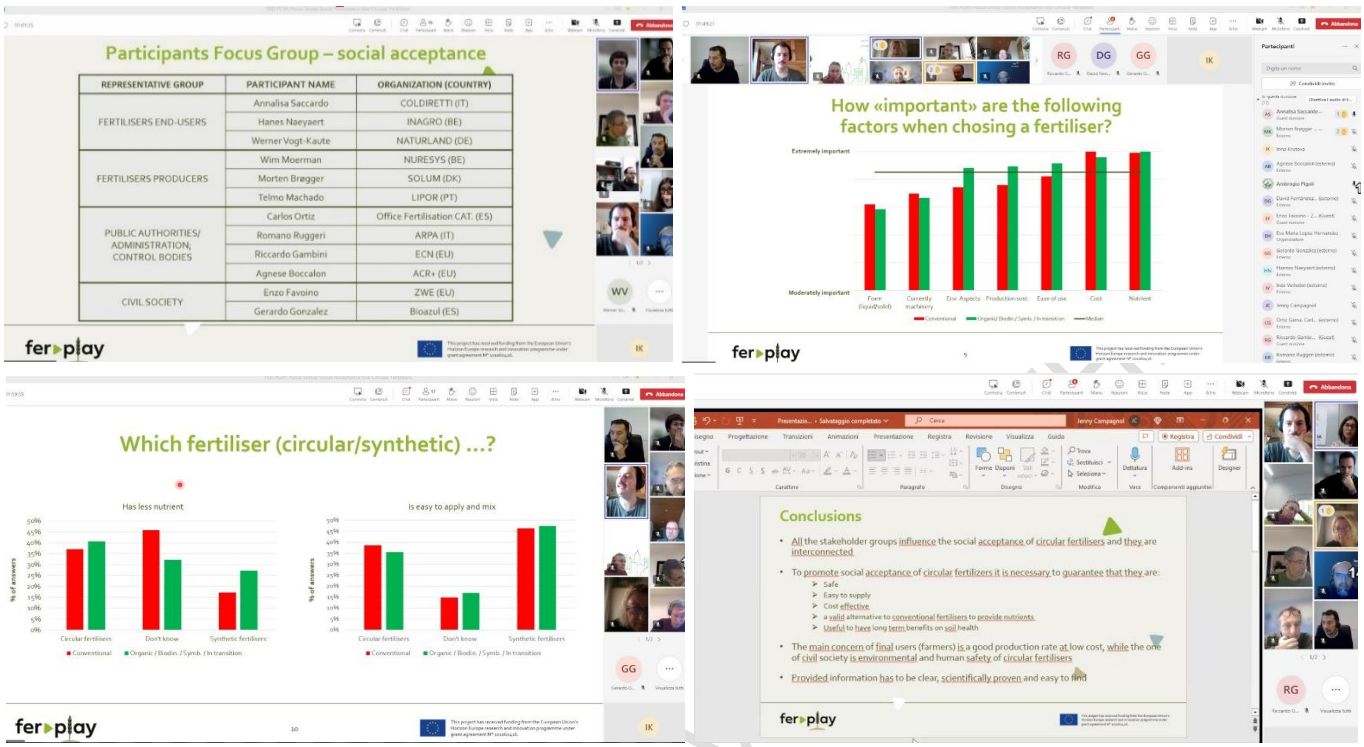
3.2. Event with stakeholders from EU (14/12/2023)

Table 24. Event Main Features (Focus Group on 14/12/2023)

Responsible partner:	CIC
Target public:	Producers, end-users, public administration, citizenship
Type of event:	Focus Group
Modality:	Online meeting
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event. Participation of a speaker engaged in P2GreeN project
Main scope:	Discussing social acceptance barriers when marketing circular fertilisers
Date (dd/mm/yyyy):	14/12/2023
Duration (hours):	2 hours
Impact:	17 participants (8 external stakeholders from which 3 fertiliser producer and 2 representatives of PA)

On the 14/12/2023, CIC organised a Focus Group with external stakeholders dedicated to the discussion about the social acceptance of circular fertilisers. The event was designed as an open round table moderated by CIC of 2 hours duration. The stakeholders invited were representing the main groups “influencing” the social acceptance of circular fertilisers (end-users, producers, public administration/control bodies, civil society). In Figure 45 some pictures taken during the online meeting are represented.

Figure 45. Pictures from the Focus Group on 14/12/2023



3.2.1. SUMMARY OF THE DISCUSSION

After a brief introduction of CIC, the project and the reason why co-creation events are part of the activities of FER-PLAY, the moderator launched the initial premises to focus the discussion:

- Focus on the elements of social mistrust that outweigh the benefits that the circular fertilisers provide to the soils and the environment.
- Discussion on the barriers but also possible ways to overcome them.
- Limit the discussion to the product (not to production site and NIMBY syndrome).
- Different target groups involved -> Highly interconnected
    - Fertiliser end-users
    - Fertiliser producers
    - Public authorities/administrations/control bodies
    - Civil Society

The last premise gave the floor to the presentation of the speakers invited (meanwhile a table with all names and target group represented was shown), highlighting clearly their connection with the circular fertiliser issue.

The discussion started once the moderator was showing the slides containing the different results obtained in the surveys performed within WP2 “Multi-assessment of impacts, trade-offs and framework conditions of selected alternative fertiliser value chains” dedicated to end-users, producers and public administration. The main topics opened to the discussion with the stakeholders invited were:

- The trust that end-users have in technical advisors as source of information and the importance of their training and update on new fertilisers (like the circular ones).
- While conventional fertilisers producers do count with an agronomist in their staff dedicated to the relationship with the end-user, this is not always the case in the producer of the circular fertiliser.
- The acceptance to the use of circular fertiliser shown by the end-users seems to be strictly linked to the low costs of the product and the high availability of nutrients; more interest on immediate results than on the long term of soil health.
- The end-users do not consider (or they do not know) that the synthetic fertilisers are the ones presenting a higher nutrient content. The end-users do not consider the distribution of circular fertilisers as a barrier. Notwithstanding, the market of circular fertilisers in EU is not fully deployed.
- The strategies that the EU is putting in place to enhance the acceptance to circular fertilisers. The role of incentivation as the only possible mechanism to overcome this mistrust.

3.2.2. RELEVANT OUTCOMES FOR THE PROJECT

The main conclusions obtained in the discussion are summarised below:

- All the stakeholder groups influence the social acceptance of circular fertilisers and they are highly interconnected.
- To promote social acceptance of circular fertilisers it is necessary to guarantee that they are:
    - Safe
    - Easy to supply
    - Cost effective
    - A valid circular to conventional fertilisers to provide nutrients
    - Useful to have long term benefits on soil health
- The main concern of end-users (farmers) is a good production rate at low cost (immediate results), while the one of civil society is environmental and human safety of circular fertilisers (long-term). The Soil Law is not as ambitious as it could have been.

- Provided information has to be clear, scientifically proven and easy to find.
- A technical advisor is a professional figure extremely important to convey information to end-users.
- To improve the current situation on the use of circular fertilisers is useful:
  - A close relationship with the end-user – technical advisor (provide information and support).
  - Training to end-users is essential to overcome uncertainty that generates mistrust (differences between fertilisers, rate and type of nutrients, how to use them).
  - The importance of QAS (quality assurance scheme) to guarantee the quality of the product (better if impurities and contaminants levels are even more restrictive than the ones from the current regulations in force).
  - The development of local markets are important (so farmers know where to buy circular fertilisers).
  - Important to provide information on the differences among the circular fertilisers and on the diverse effect that the different recycling processes have on the agronomic characteristics and environmental impacts.

3.3. Event with stakeholders from EU (16-17/01/2024)

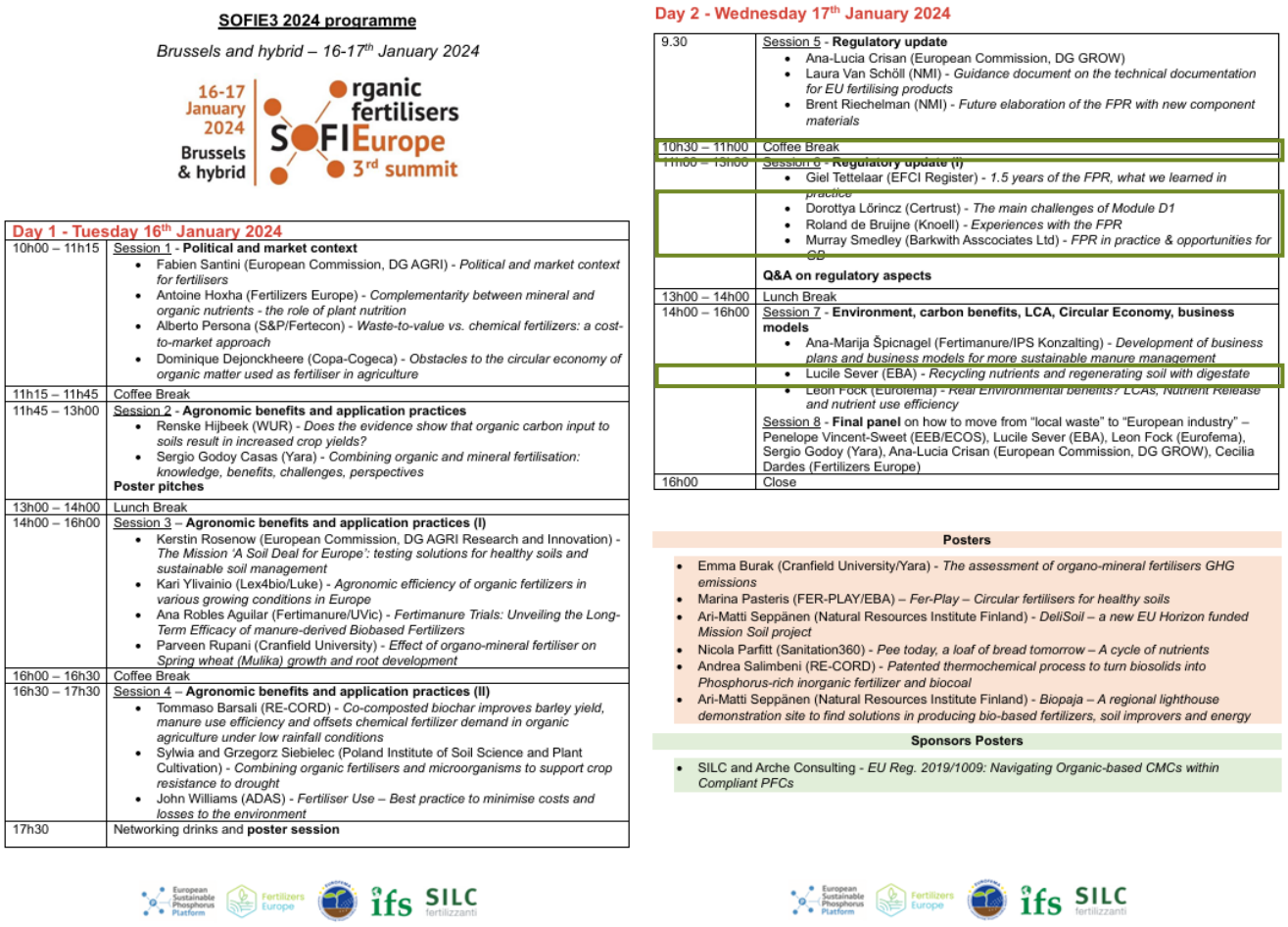
Table 25. Event Main Features (Conference on 16-17/01/2024) in Belgium

Responsible partner:	EBA
Target public:	Fertiliser producers
Type of event:	Multi-topic seminar inside the SOFIE3 conference
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	Event inside the SOFIE3
Main scope:	Gathering feedback on commercial and regulatory drivers for the uptake of circular fertilisers
Location (Country acronym)	BE
Date (dd/mm/yyyy):	16-17/01/2024
Duration (hours):	1 hour 30 minutes
Impact:	142 participants (75 fertiliser producers; 1 representative of the agriculture sector; 5 representatives of public administration)

On 16/01/2024 and 17/01/2024, EBA participated in the SOFIE 3 Conference organised by the European Phosphorus Sustainable Platform (ESPP), held in Brussels. During the Conference, EBA had the opportunity to gather insights on the commercial and regulatory drivers for the uptake of circular fertilisers. This was achieved through a poster session, a keynote session in the plenary and a panel discussion which, as a whole, is considered to represent a multi-topic discussion.

The agenda of the Conference is shown in the following Figure 46. The parts related to FER-PLAY project are highlighted dark green.

Figure 46. Agenda of the Conference SOFIE3 held on 16-17/01/2024 where the multi-topic seminar was held



SOFIE3 2024 programme

Brussels and hybrid – 16-17th January 2024

16-17 January 2024 Brussels & hybrid — Organic fertilisers SOFIEurope 3rd summit

Day 1 - Tuesday 16th January 2024	
10h00 – 11h15	Session 1 - **Political and market context** • Fabien Santini (European Commission, DG AGRI) - *Political and market context for fertilisers* • Antoine Hoxha (Fertilizers Europe) - *Complementarity between mineral and organic nutrients - the role of plant nutrition* • Alberto Persona (S&P/Fertecon) - *Waste-to-value vs. chemical fertilizers: a cost-to-market approach* • Dominique Dejonckheere (Copa-Cogeca) - *Obstacles to the circular economy of organic matter used as fertiliser in agriculture*
11h15 – 11h45	Coffee Break
11h45 – 13h00	Session 2 - **Agronomic benefits and application practices** • Renske Hijbeek (WUR) - *Does the evidence show that organic carbon input to soils result in increased crop yields?* • Sergio Godoy Casas (Yara) - *Combining organic and mineral fertilisation: knowledge, benefits, challenges, perspectives* **Poster pitches**
13h00 – 14h00	Lunch Break
14h00 – 16h00	Session 3 – **Agronomic benefits and application practices (I)** • Kerstin Rosenow (European Commission, DG AGRI Research and Innovation) - *The Mission 'A Soil Deal for Europe': testing solutions for healthy soils and sustainable soil management* • Kari Ylivainio (Lex4bio/Luke) - *Agronomic efficiency of organic fertilizers in various growing conditions in Europe* • Ana Robles Aguilar (Fertimanure/UVic) - *Fertimanure Trials: Unveiling the Long-Term Efficacy of manure-derived Biobased Fertilizers* • Parveen Rupani (Cranfield University) - *Effect of organo-mineral fertiliser on Spring wheat (Mulika) growth and root development*
16h00 – 16h30	Coffee Break
16h30 – 17h30	Session 4 – **Agronomic benefits and application practices (II)** • Tommaso Barsali (RE-CORD) - *Co-composted biochar improves barley yield, manure use efficiency and offsets chemical fertilizer demand in organic agriculture under low rainfall conditions* • Sylwia and Grzegorz Siebielec (Poland Institute of Soil Science and Plant Cultivation) - *Combining organic fertilisers and microorganisms to support crop resistance to drought* • John Williams (ADAS) - *Fertiliser Use – Best practice to minimise costs and losses to the environment*
17h30	Networking drinks and **poster session**

Day 2 - Wednesday 17th January 2024

9.30	Session 5 - **Regulatory update** • Ana-Lucia Crisan (European Commission, DG GROW) • Laura Van Schöll (NMI) - *Guidance document on the technical documentation for EU fertilising products* • Brent Riechelman (NMI) - *Future elaboration of the FPR with new component materials*
10h30 – 11h00	Coffee Break
11h00 – 13h00	Session 6 - **Regulatory update (I)** • Giel Tettelaar (EFCI Register) - *1.5 years of the FPR, what we learned in practice* • Dorottya Lőrincz (Certrust) - *The main challenges of Module D1* • Roland de Bruijne (Knoell) - *Experiences with the FPR* • Murray Smedley (Barkwith Asscociates Ltd) - *FPR in practice & opportunities for OB* **Q&A on regulatory aspects**
13h00 – 14h00	Lunch Break
14h00 – 16h00	Session 7 - **Environment, carbon benefits, LCA, Circular Economy, business models** • Ana-Marija Špicnagel (Fertimanure/IPS Konzalting) - *Development of business plans and business models for more sustainable manure management* • Lucile Sever (EBA) - *Recycling nutrients and regenerating soil with digestate* • Leon Fock (Eurofema) - *Real Environmental benefits? LCAs, Nutrient Release and nutrient use efficiency* Session 8 - **Final panel** on how to move from "local waste" to "European industry" – Penelope Vincent-Sweet (EEB/ECOS), Lucile Sever (EBA), Leon Fock (Eurofema), Sergio Godoy (Yara), Ana-Lucia Crisan (European Commission, DG GROW), Cecilia Dardes (Fertilizers Europe)
16h00	Close

Posters

- Emma Burak (Cranfield University/Yara) - *The assessment of organo-mineral fertilisers GHG emissions*
- Marina Pasteris (FER-PLAY/EBA) – *Fer-Play – Circular fertilisers for healthy soils*
- Ari-Matti Seppänen (Natural Resources Institute Finland) - *DeliSoil – a new EU Horizon funded Mission Soil project*
- Nicola Parfitt (Sanitation360) - *Pee today, a loaf of bread tomorrow – A cycle of nutrients*
- Andrea Salimbeni (RE-CORD) - *Patented thermochemical process to turn biosolids into Phosphorus-rich inorganic fertilizer and biocoal*
- Ari-Matti Seppänen (Natural Resources Institute Finland) - *Biopaja – A regional lighthouse demonstration site to find solutions in producing bio-based fertilizers, soil improvers and energy*

Sponsors Posters

- SILC and Arche Consulting - *EU Reg. 2019/1009: Navigating Organic-based CMCs within Compliant PFCs*

On the following Figure 47 some photos taken during the Conference are presented.

Figure 47. Pictures from the Conference SOFIE3 held on 16-17/01/2024 in Belgium

3.3.1. SUMMARY OF THE DISCUSSION

- **Poster pitch (10 minutes)**

On 16/01/2024 EBA (Marina Pasteris, Technical and Project Officer) pitched FER-PLAY project to the audience.

This was an opportunity to present the project's methodology and explain how FER-PLAY is collecting feedback from fertiliser producers about the technical, commercial, and regulatory challenges for the uptake of circular fertilisers.

The poster was also available for the audience in the hall throughout the two-day conference.

- **Keynote presentation (20 minutes)**

On 17/01/2024 EBA (Lucile Sever, Policy Officer for Circular Economy) provided an overview of digestate, one of the circular fertilisers selected in FER-PLAY. The presentation highlighted findings on the volume of digestate produced in Europe, its potential to replace synthetic fertilisers, and its capacity for carbon storage. EBA also discussed the various current applications of digestate. Following this, EBA presented examples of the challenges currently faced by circular fertilisers, including:

Meeting the EU Fertilising Products Regulation requirements for certification as circular fertiliser can be challenging.

The Animal By-Products Regulation is not always aligned with the EU Fertilising Products Regulation, resulting in potential discrepancies.

The Nitrates Directive imposes restrictions on the use of recycled nitrogen from manure.

The Sewage Sludge Directive places limitations on recycling sewage sludge (and products derived from it) to land.

EBA further highlighted how these challenges conflict with the objectives of soil carbon storage and carbon and nutrient recycling specified in several policies, including the proposed Soil Monitoring Law, incentives for circular fertiliser use in CAP eco-schemes, carbon policies, the Waste Framework Directive, and the revision of the Urban Waste Water Framework Directive.

- **Panel discussion (1 hour)**

Lastly, the concluding panel discussion provided an opportunity to collect feedback from both fellow panelists and the audience. The panel, titled "Transitioning from 'Local Waste' to a European Industry," included representatives from three fertiliser producers' associations (Lucile Sever from EBA, Leon Fock from EUROFEMA, and Cecilia Dardes from Fertilizers Europe), a representative from a fertiliser company (Sergio Godoy from Yara), and a representative from an NGO (Penelope Vincent-Sweet from EEB/ECOS).

Firstly, the moderator initiated a discussion on the key takeaways from the Conference. Many stakeholders in attendance, along with panel speakers, emphasised the significant value of circular fertilisers, particularly in their organic carbon content. They highlighted the benefits they bring to soil fertility, carbon sequestration, water retention, etc. To promote the adoption of circular fertilisers across Europe, several speakers stressed the importance of widely communicating these benefits to end-users. They also called for increased research and innovation to better understand the impact of circular fertilisers on soil health.

Moreover, it was also highlighted that the environmental benefits associated with circular fertilisers should be quantified monetarily, similar to existing carbon pricing schemes. Additionally, stakeholders advocated for greater knowledge transfer to end-users regarding the importance of balanced nutrition and the practical tools and practices to achieve it.

Secondly, the discussion focused on the policies and industry actions necessary to further develop and implement precision circular or organo-mineral fertilisers for farmers. Many stakeholders identified the complexity of the legislative framework in Europe as a significant barrier for fertiliser producers, particularly for small producers who may struggle to navigate regulations like the EU Fertilising Products Regulation without specialised consultants. There was a call for initiatives like the Expert Group on Fertilising Products to address these regulatory barriers.

Furthermore, stakeholders highlighted the need for regulatory incentives to support the adoption of circular fertilisers, such as nutrient recycling targets for fertiliser producers and incentives within the Common Agricultural Policy. They emphasised the importance of a comprehensive strategy on fertilisation from the European Union, addressing both production and use.

It was also emphasised that the industry has a responsibility to offer high-quality products that have positive climate and environmental impacts, which would further encourage the adoption of circular fertilisers. Additionally, stakeholders stressed the importance of cooperation between the mineral fertiliser and circular fertiliser industries to enhance nutrient use efficiency for farmers.

Lastly, there was discussion on the challenge of integrating European knowledge, expertise, and methodologies into decentralised local production, distribution, and farmer education efforts.

3.3.2. RELEVANT OUTCOMES FOR THE PROJECT

The following are the most important outcomes of the Event for the project:

- Increase communication regarding the environmental and agronomic advantages of utilising circular fertilisers, often in combination with mineral fertilisers.
- Streamline the regulatory framework and resolve regulatory obstacles via suitable platforms.
- Encourage regulatory incentives to facilitate the adoption of circular fertilisers and uphold a high-quality standard across all circular fertilisers.

3.4. Event with producers from EU (01/02/2024)

Table 26. Event Main Features (Multi-topic seminar in Italy on 01/02/2024)

Responsible partner:	CIC
Target public:	Producers, circular fertilisers stakeholders
Type of event:	Multi-topic seminar
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event
Main scope:	Discussing technical, commercial and regulatory implications for circular fertilisers at EU regulatory level
Location (Country acronym):	IT
Date (dd/mm/yyyy):	01/02/2024
Duration (hours):	2 hour 30 minutes
Impact:	41 participants (20 fertiliser producers; 2 farmer+technicians)

On 01/02/2024 CIC organised a seminar inside the International Agricultural Fair of Verona to hold a discussion with fertiliser producers about the main current challenges and opportunities that the market of organic fertilisers is facing. The event, that was titled “Organic Fertilisers, challenges and opportunities” becomes the second multi-topic technical seminar organised withing WP3, with the aim to gather feedback on commercial and regulatory drivers for the use of circular fertilisers.

Within the stand outside the event, the participation to the project surveys, regarding the social aspects linked with the acceptance of circular fertilisers, was fostered among the attendees. The event was held in Italian language, offering the possibility for simultaneous translation to English.

The agenda of the Event is shown in the following Figure 48.

Figure 48. Agenda of the Multi-topic seminar held on 01/02/2024 within the International Agriculture Fair of Verona

In Figure 49 some photos taken during the meeting are presented.

Figure 49. Pictures from the Multi-topic seminar held on 01/02/2024

3.4.1. SUMMARY OF THE DISCUSSION

The discussion was opened by the presentation of CIC Director about the insights of the Fertilising Products Regulation and the specifics for the case of compost and digestate and which consequences the Regulation has on the market at European and Italian level.

A presentation about the situation of the market of compost from bio-waste in Italy was shown by CIC, detailing the three different products existing in Italy (compost from foodwaste+green waste, from only green waste and from organic waste containing sewage sludge). Most of compost is used in professional agriculture and the market dimension is mainly local, highlighting the fact that still the transport costs are an important issue in the total price of the product.

At this stage, different studies dealing with compost and digestate coming from the recycling of organic matrix, among which FER-PLAY, were presented. To be highlighted the results presented on the positive consequences on the soil in terms of microbiological activity, soil fertility and carbon storage.

The last part of the event was open to the presentations of the experiences from 3 organic fertiliser producers showing how, from the difficulties of the market they have invest in improvement of the products and research to be able to reply to the new economic and regulatory context. After their participation, the space was open to comments and discussion from the attendees who were asking more details about all the activities presented.

3.4.2. RELEVANT OUTCOMES FOR THE PROJECT

According to the debate one key outcome of the event to be considered for the project is the importance of making available living labs for rising awareness and overcome social acceptance. Research through open-field tests linked to show-case events reveals to be essential to show results to the different stakeholders (not only to the end-user but also to the producers themselves). However, these tests should foresee long duration to present reliable results, which means to foresee an important budget to be dedicated to these activities.

Another important issue discussed was the fact that in the case of compost in Italy, even after so many years of existing market, quality controlling legislation and open-field research proving the benefits on the soil, the market value is still very low. Incentives to the use of quality organic fertilisers are depicted as the most efficient drivers for a change.

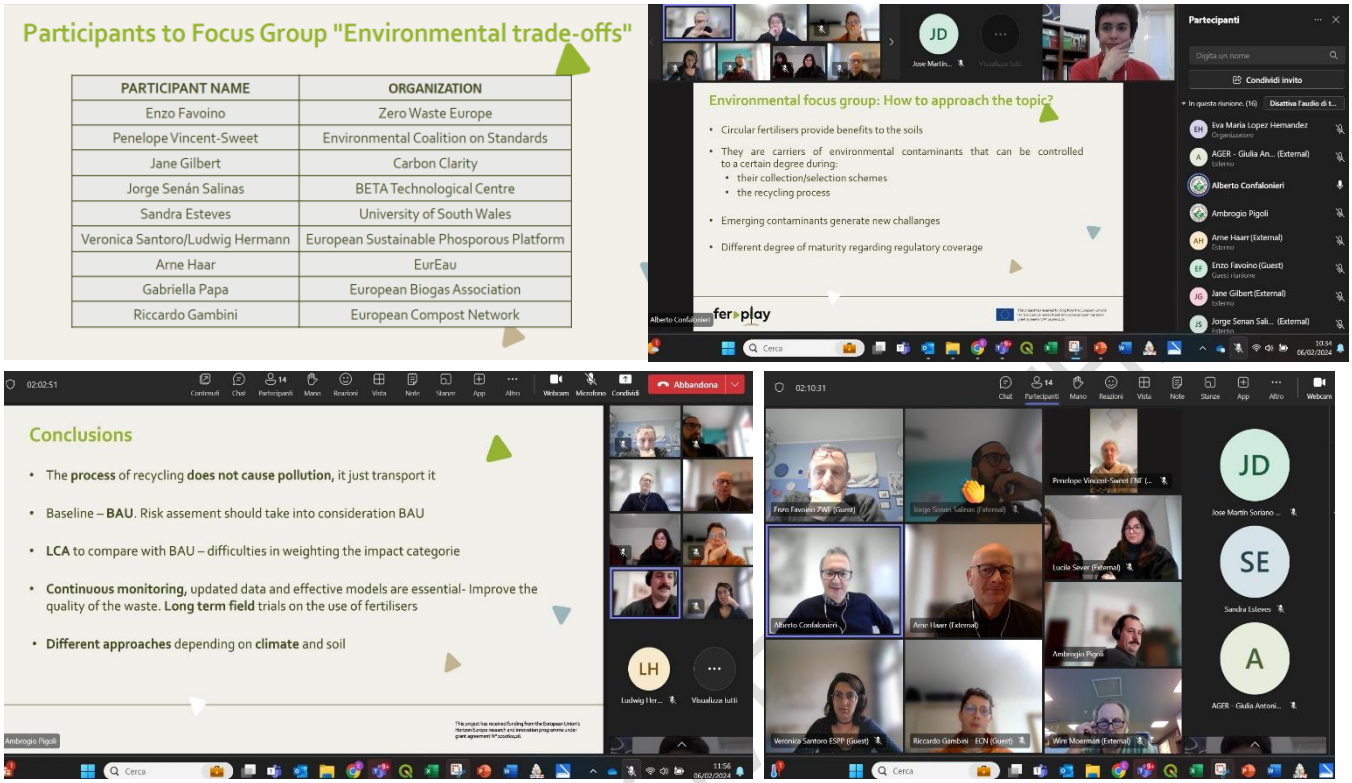
3.5. Event with stakeholders from EU (06/02/2024)

Table 27. Event Main Features (Focus Group on 06/02/2024)

Responsible partner:	CIC
Target public:	Experts on environmental topic
Type of event:	Focus Group
Modality:	Online meeting
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event
Main scope:	Discussing environmental trade-offs linked to the use of circular fertilisers
Date (dd/mm/yyyy):	06/02/2024
Duration (hours):	2 hours
Impact:	16 participants (9 external stakeholders; 4 fertiliser producer)

On 06/02/2024, CIC organised the second Focus Group of the project to discuss with external stakeholders the environmental trade-offs linked to the use of Circular Fertilisers. The event was designed as an open round table moderated by CIC of 2 hours duration. The stakeholders invited were chosen due to their expertise on environmental topics linked with the use of recycled materials in soils. Figure 50 presents some pictures of the meeting. One of the external experts invited represented NOVAFERT project.

Figure 50. Pictures from the Focus Group on 06/02/2024



Participants to Focus Group "Environmental trade-offs"

PARTICIPANT NAME	ORGANIZATION
Enzo Favoino	Zero Waste Europe
Penelope Vincent-Sweet	Environmental Coalition on Standards
Jane Gilbert	Carbon Clarity
Jorge Senán Salinas	BETA Technological Centre
Sandra Esteves	University of South Wales
Veronica Santoro/Ludwig Hermann	European Sustainable Phosporous Platform
Arne Haar	EurEau
Gabriella Papa	European Biogas Association
Riccardo Gambini	European Compost Network

3.5.1. SUMMARY OF THE DISCUSSION

After a brief introduction of CIC, the project and the reason why co-creation events are part of the activities of FER-PLAY were presented by the coordinator. Being the environmental topic significantly wide, the moderator highlighted the initial assumptions to focus the discussion:

- Circular fertilisers provide benefits to the soils.
- They are carriers of environmental contaminants that can be controlled to a certain degree during:
  - their collection/selection schemes
  - the recycling process
- Emerging contaminants generate new challenges.
- Circular fertilisers present different degree of maturity regarding the regulatory framework (and so the contaminants limits are).

With the aim at discussing about the proper balance of the cost and benefits in environmental terms when using circular fertilisers and what are the acceptable risks we are willing to assume, three approaches were presented to foster the discussion:

- Precautionary Approach: “Mass balance” or “No Net Accumulation” (NNA) in relation to the concentration of contaminants in the soil. This approach limits the application of circular fertilisers to very low amounts and so it does with their associated benefits.
- Risk Assessment Approach: determination of acceptable contamination associated to a reasonable dose of fertiliser applied, beyond which adverse effect are observed. In this case, there is a risk of progressive concentration of contaminants in soil as a consequence of repeated application of fertilisers year after year.
- Hybrid between precautionary and risk: Modelling the effects of repeated applications of fertilisers over time (i.e. assessment of predicted environmental concentration (PEC) in comparison with the predicted no effect concentration (PNEC)). This approach allows the exploitation of benefits brought by the circular fertilisers. Contamination control is entrusted to policies to improve the quality of waste and transformation processes.

The discussion started by one of the external experts invited who highlighted the fact that it is important to define in any case the baseline scenario which should be the *business as usual* situation (taking into account the current degradation of soils in EU), which is on the other hand non-static situation. The rest of participants joined by sharing their experience on the topic related to their specific field (compost from biowaste, sewage sludge, etc.). It was also mentioned that the new EU market fertiliser regulation should be able to ensure that products complying with the limits stablished are safe both for the environment and for the human.

3.5.2. RELEVANT OUTCOMES FOR THE PROJECT

The main conclusions drafted after the discussion and approved by participants are included below:

- The process of recycling as itself is not always the main cause of the pollution, but the means of transportation.
- Risk assessment should take into consideration BAU (business as usual) as baseline.
- LCA to compare with BAU – difficulties in weighting the impact categories.
- Continuous monitoring, updated data and effective models are essential - Improve the quality of the waste. Long-term field trials on the use of fertilisers.

- The environmental assessment may have different approaches depending on climate and soil.
- When different pathways are possible to treat the same waste stream, enhancing the environmental benefits while recycling is a priority, according with an LCA and considering a trade-off of different impact categories.
- Recovery of nutrients together with organic matter should be favoured (against only nutrients extraction).
- Low technology recovery for clean sources are acceptable pathways and should not always be substituted by high-tech solutions.

3.6. Event with stakeholders from EU (26/03/2024)

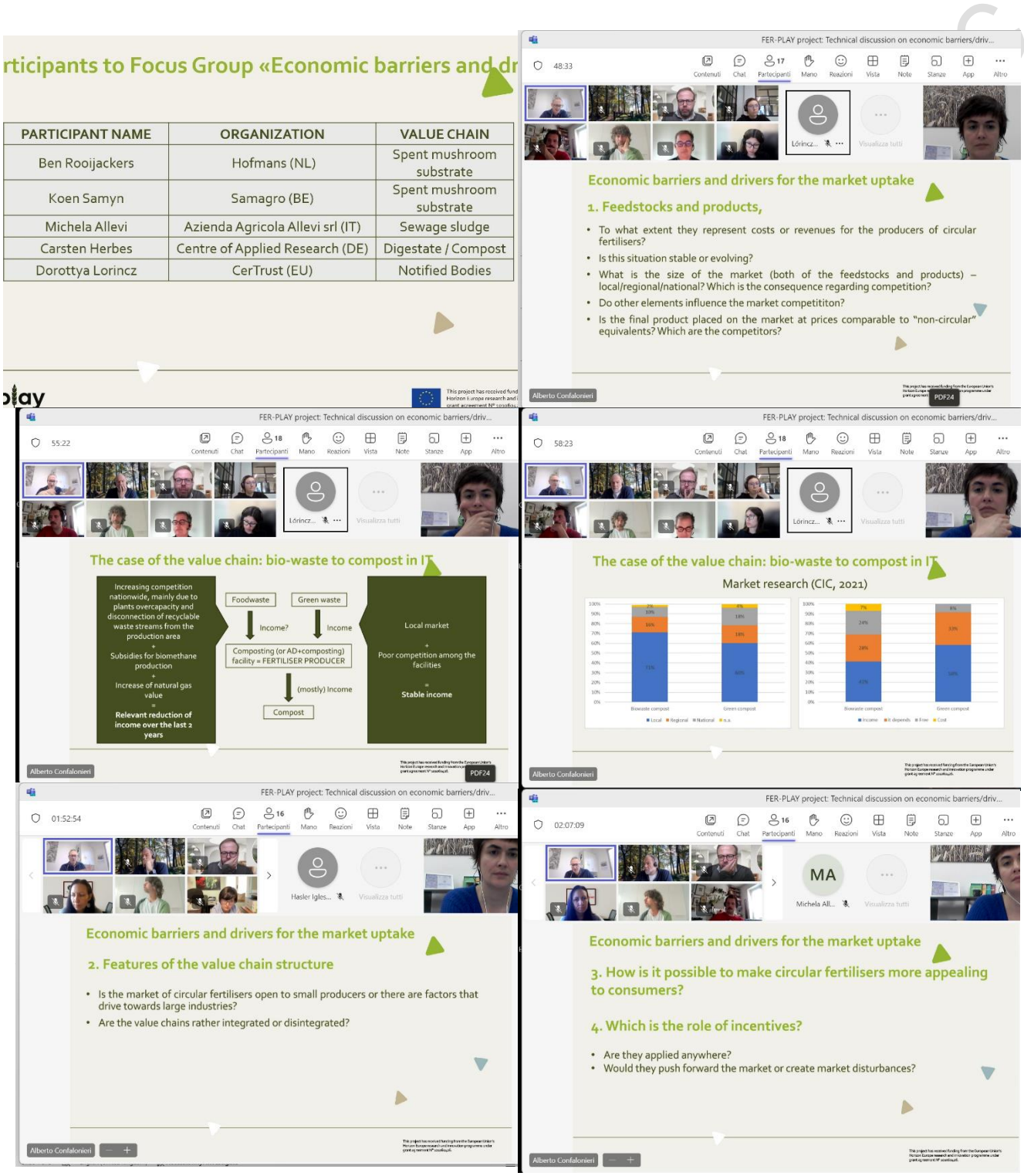
Table 28. Event Main Features (Focus Group on 26/03/2024)

Responsible partner:	CIC
Target public:	Producers, end-users, public administration, citizenship
Type of event:	Focus Group
Modality:	Online meeting
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event.
Main scope:	Discussing economic barriers and drivers of the circular fertilisers market
Date (dd/mm/yyyy):	26/03/2024
Duration (hours):	2 hours
Impact:	17 participants (5 external stakeholders; 4 fertiliser producers)

On 26/03/2024, CIC organised a Focus Group with external stakeholders dedicated to the discussion on the economic barriers/drivers of circular fertilisers market. The event was designed as an open round table moderated by CIC of more than 2 hours duration. The stakeholders invited were representing some of the value chains studied within the project (spent mushroom substrate, compost from bio-waste, digestate from manure, sewage sludge). In addition, one of the Notified Bodies was also invited as they are stakeholders interested in understanding the current market features of the circular fertilisers and the economic capacity of producers to adapt their business to the new EU Regulation.

This event was of high interest for the life cycle of costs being developed within WP2. Partners involved were present in the discussion. Figure 51 shows some pictures taken during the online meeting.

Figure 51. Pictures from the Focus Group on 26/03/2024



3.6.1. SUMMARY OF THE DISCUSSION

After a brief introduction of CIC, of the project and of the reasons why co-creation events are part of the activities of FER-PLAY, the moderator gave the floor to the external experts invited to present their experience in the production/commercialisation/certification of the circular fertilisers.

The questions launched by CIC to enhance the discussion were:

- Feedstocks and fertilisers: to what extent are they costs or revenues for the producers of circular fertilisers, and their relationship with the size of the markets. Is the situation stable or evolving?
- Features of the different value chains: is the circular fertiliser's market open to small producers or there are factors that drive towards large industries? Are the value chains rather integrated or disintegrated?
- Presence and role of incentives in pushing forward the value chains of circular fertilisers.

The most important feedback obtained from the experts can be summarised in the following points:

- Some of the circular fertilisers containing high amount of N do not find a place in the local market when they are produced in areas of high animal density production, due to the constrains linked to the Nitrates Directive. Therefore, they should be transported in other regions/countries at a higher price due to shipping costs.
- The drying + pelletisation of the fertiliser is a way to upgrade product quality, which improves marketability but implying high pretreatment costs.
- Some value chains trusting on small producers have difficulty on ensuring constant quality.
- The fragmentation of the value chain among different operators is a common tendency that EU is more and more experimenting. The dimension of the fertiliser producer is also increasing.
- Regarding the certification under the CE label, small producers do not find it appealing due to the dimension of their market (local) and the linked bureaucracy.
- The national transposition, for some countries, of the Common Agriculture Policy included an incentive to the use of circular fertilisers to enhance the soil organic matter. There is a wide variety on how it is promoted and the importance given to the sole use of products certified under the CE label. As an example, Italy in some of the measure addresses the incentives to those farmers using fertilisers/soil improvers certified under CE label (even if the Italian Fertilising Regulation is coexisting with the EU Reg 2019/1009) whereas other countries (like Hungary) promote the opposite by limiting incentives to the compliance with national regulations.
- In some countries the lack of Notified Bodies certifying fertiliser products under the EU Reg. 2019/1009 is blocking both the market and the farmers incentives.

3.6.2. RELEVANT OUTCOMES FOR THE PROJECT

During the meeting, CIC carried out an analysis on what external stakeholders were pointing out in order to list the main strengths and weaknesses of the circular fertiliser market. The main conclusions obtained are summarised below:

STRENGTHS:

- Revenue that the producer get from feedstocks (in the case of bio-waste, sludge and some manure).
- Subsidies to circular fertilisers producers (due to the production of biomethane when anaerobic digestion is included in the production process).
- Subsidies to farmers for using circular fertilisers.
- N content of some of the circular fertiliser.
- Not many competitors for organic soil improver in the market (peat is of decreasing diffusion as amendment).
- Quality label provided by National Quality Assurance Organisation is a guarantee of quality controls and a marketing strategy.
- Possibility to be certified with CE label to increase the market size.
- Possibility to improve marketing strategies by communicating in a more appealing way (e.g. by using words as “renewable”, “circular”, “local”).

WEAKNESSES:

- High market competition in areas of high density of animal production with other circular fertilisers presenting high N content.
- No local market means high transportation costs due to low density of products.
- Pretreatment costs to upgrade the fertiliser (drying + pelletising).
- CE label programme is too expensive for small producers and the low number of notified bodies can make labelling procedure very difficult.
- Lack of homogeneous nutrient content due to many small producers.

- Final users don't know differences among circular fertilisers properties and the related economic value.

3.7. Event with stakeholders from EU (10/04/2024)

Table 29. Event Main Features (Multi-topic seminar on 10/04/2024)

Responsible partner:	CIC
Target public:	Producers
Type of event:	Multi-topic seminar
Modality:	Hybrid (online+in presence)
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event.
Main scope:	Discussing state of art and challenges for the application of EU regulation of circular fertilisers market and exploring the situation of 3 value chains
Location (Country acronym)	IT
Date (dd/mm/yyyy):	10/04/2024
Duration (hours):	3 hours
Impact:	63 participants (39 fertiliser producers; 9 farmers+technicians; 2 representative of Public Administration)

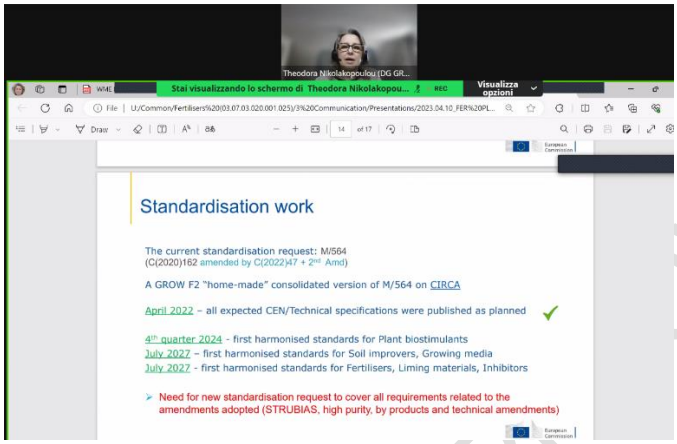
On 10/04/2024 CIC organised a Multi-topic seminar within the Waste Management Europe 2024 fair (Bergamo, Italy) to hold a discussion with fertiliser producers on the current state of art and challenges for the application of the European Fertilisers Regulation. The seminar whose title was “A European market for circular fertilisers” is the third multi-topic technical seminar organised withing WP3.

The agenda of the Event is shown in the following Figure 52.

Figure 52. Agenda of the multi-topic seminar held on 10/04/2024 within Waste Management Europe Fair

The following Figure 53 and Figure 54 present the screenshots taken during the presentations done by the 9 speakers.

Figure 53. Pictures of first 6 speakers presenting during the seminar on 10/04/2024



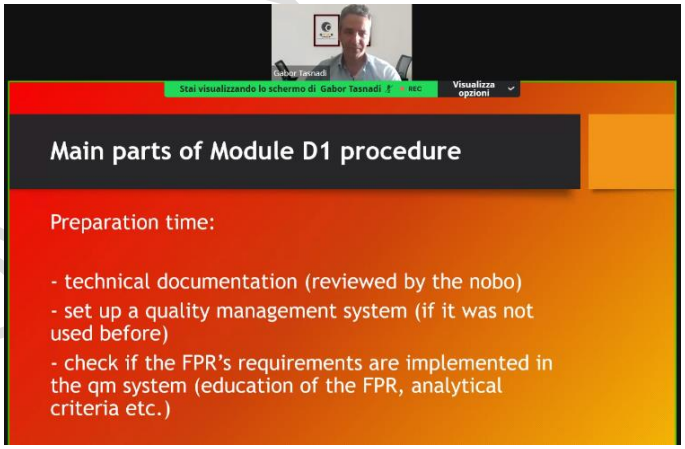
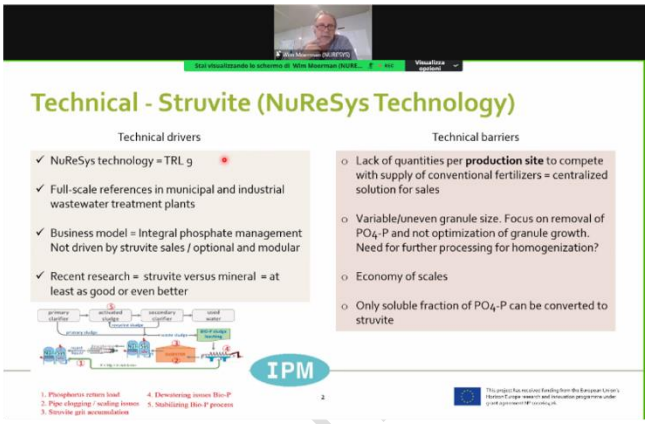
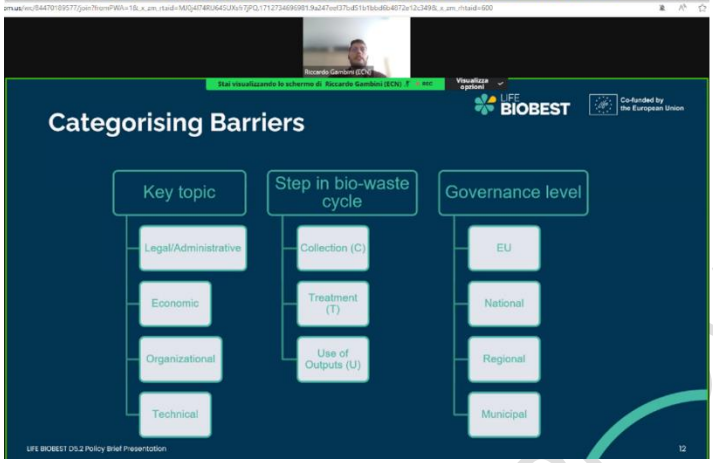


Figure 54. Pictures of the last 3 speakers presenting during the seminar on 10/04/2024





On Figure 55 some photos taken during the event where in-presence participants can be seen are presented.

Figure 55. Pictures of the seminar on 10/04/2024

3.7.1. SUMMARY OF THE DISCUSSION

This seminar was conceived as a moment of discussion on one of the main concerns of circular fertiliser producers in Europe: the Regulation (EU) 2019/1009 – laying down rules on the making available on the market of EU fertilising products (FPR).

After a brief presentation of FER-PLAY project and of one international initiative to foster the implementation of soil friendly practices, the Programme was divided into two parts. The first one was devoted to the state of the art of the implementation of the Regulation in practical terms and what are the challenges to still be faced by all parties involved (the EC, the Notified Bodies, the Standards Bodies and the fertiliser producers).

In that sense, the EC (DG GROW) explained the main features of the new legislative framework, pointing out that not all materials recovered are allowed and the specificities when dealing with animal by-products (ABPs). It was highlighted that the FPR is in working process to cover materials that were not included in the initial texts and the EC itself has launched a technical study to understand and evaluate how the main rules are functioning by the different parties.

The representative of one of the EU Notified Bodies gave an overview about the situation in what regards the implementation of the FPR in practical terms like the certification of the product and

how far are we to accomplish the production of circular fertilisers within the new legislative framework. It was pointed out the usefulness of informative webinars to clarify doubts from the manufacturers (producers and traders).

The third speaker, representing the Italian Standard Body, provided an update with respect to the elaboration of harmonised CEN standards, that is, a common analytical framework to be used by the manufacturers to verify the fulfilment of their products or component materials with the FPR.

The last speaker of the first block shared some reflections on how the fertiliser producers are facing this new legislative situation. The FPR for the sector represents an important opportunity for economic growth and an incentive for implementing more research and development activities. The still lack of technical implementation of the regulation (e.g. the incomplete list of ABPs, the lack of sufficient Notified Bodies – only 15 in EU- and the in-process standardisation methods) is not only slowing the opportunities for the fertiliser producers but also for the farmers (feedstock security).

The second block of presentations refer to how the producers of fertilisers from 3 different value chains (struvite and sludge from wastewater and compost from biowaste) are facing this new market situation and what are the opportunities/barriers for the near future.

The first presentation was made by EFAR, a European association promoting the use of sludge for agriculture. He showed his disagreement with the fact that the FPR only mineral fertilisers from sewage sludge ashes whereas when ensuring all safety and quality can be an important feedstock for the circular economy.

The second presentation was provided by NURESYS, a technology provider for phosphorus recovery, who explained which are the main opportunities and challenges they are facing at technical, social, environmental and legislative level for the production of struvite. The speaker emphasises the fact that struvite is allowed in organic agriculture, which sometimes is still unknown by farmers and technicians.

The last speaker from the European Compost Network provided an overview on the outcomes obtained by LIFE BIOBEST project related to the regulatory, economic and administrative challenges of the compost coming from the organic fraction of the Municipal Solid Waste.

3.7.2. RELEVANT OUTCOMES FOR THE PROJECT

- The EC is preparing a delegated Regulation for the inclusion of Animal By-Products in the FPR (CMC 10).

- The rules for digital labelling will be soon available for fertilisers complying with the regulation (but it will be not mandatory).

- Not harmonised standards are available yet.

- The construction of a common analytical framework is undergoing to ensure that manufacturers verify the fulfilment of their products or component materials with the FPR with the correct methods.

- Still there is a common unknown of the Regulation and some products are categorised by manufacturers into incorrect PFC and CMC. The good understanding of the new rules is essential and so it is the support from technical associations.

- The use of struvite is allowed in organic agriculture, which sometimes is still unknown by farmers and technicians.

Some documents of interest for stakeholders are reported below with the corresponding link:

- Guidance Document on the labelling of EU Fertilising Products; available here.
- FAQs document on Fertilising Products Regulation; available here.
- Commission Expert Group on fertilising products (documents available here).
- Member States competent authorities list.
- Market Surveillance authorities responsible for controls of products list.
- The inception report for the technical study to include new materials is found here.
- List of Notified Bodies per country here.

3.8. Event with producers from EU (18/04/2024)

Table 30. Event Main Features (Multi-topic seminar on 18/04/2024)

Responsible partner:	CIC
Target public:	Fertiliser producers
Type of event:	Multi-topic seminar
Modality:	In presence
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event.
Main scope:	Discussing of drivers and challenges related to the use of circular fertilisers

Location (Country acronym)	BE
Date (dd/mm/yyyy):	18/04/2024
Duration (hours):	3.5 hours
Impact:	34 participants (23 fertiliser producers; 1 representative of Public Administration)

On 18/04/2024 in Brussels, the European Compost Network (ECN) and Consorzio Italiano Compostatori (CIC) co-organised the in-person event “Circular Fertilisers for Healthy Soils: Drivers and Challenges”. The seminar was held at Mundo Madou conference centre, within the framework of FER-PLAY project. Five experts were invited to present the specificities of different waste streams, resulting in a broad overview of the current issues impacting the fertiliser production sector. The event gathered more than 30 stakeholders, mostly from the fertiliser producers, with a minority of them representing research entities and public administration (European Commission).

The agenda of the Event is shown in the following Figure 56.

Figure 56. Agenda of the Multitopic seminar held on 18/04/2024

fer▸play

ECN

CIRCULAR FERTILISERS FOR HEALTHY SOILS: DRIVERS AND CHALLENGES

FER-PLAY Seminar
18 April 2024 – Mundo Madou, Av. des Arts 7/8, 1210 Brussels

Back in March 2020, the European Commission announced its intention to develop an integrated nutrient management strategy in the Circular Economy Action Plan, "with a view to ensuring more sustainable application of nutrients and stimulating the markets for recovered nutrients". Later on in 2021, the Communication on Sustainable Carbon Cycles was adopted, promoting green business models which take up sustainable practices, including the recycling of carbon from waste streams. Against this background, the goal of the seminar is to discuss the drivers and barriers (from the technical, economic, social, legislative and environmental point of view) for the uptake of circular fertilisers in the market, from producers' perspective.

	Circular fertilisers for healthy soils: drivers and challenges
13:30 – 14:00	Welcoming and registration
14:00 – 14:05	Opening remarks
14:05 – 14:15	Presentation of the FER-PLAY project – Elisa Gambuzzi (CETENMA)
14:15 – 14:35	ECN-QAS and LIFE BioBest guidelines – Stefanie Siebert (ECN)
14:35 – 14:45	Q/A session
14:45 – 15:05	Compost from bio-waste – Irmgard Leifert (RETERRA)
15:05 – 15:15	Q/A session
15:15 – 15:30	Coffee Break
15:30 – 15:50	Digestate from manure – Pascal Van Hove (WATERLEAU NEWENERGY)
15:50 – 16:00	Q/A session
16:00 – 16:20	Struvite from wastewater treatment – Wim Moerman (NURESYS)
16:20 – 16:30	Q/A session
16:30 – 16:50	Panel discussion
16:50 – 17:00	Conclusions and closure of the event

MODERATOR: Jane Gilbert (Carbon Clarity, UK)

The event is organised by the European Compost Network in collaboration with the Consorzio Italiano Compostatori (CIC).

fer▸play

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

On Figure 57 some photos taken during the event are shown.

Figure 57. Pictures of the seminar on 18/04/2024

3.8.1. SUMMARY OF THE DISCUSSION

The moderator, Dr. Jane Gilbert (Carbon Clarity), opened the meeting with introductory remarks, anticipating the content of the seminar and the relevance of circularity not only for tackling the climate and biodiversity crisis, but also in the context of the current geo-political uncertainties. Against this background, Europe needs to be more self-sufficient and ready for potential shocks, focusing the attention on the impacts in the Fertilisers' market.

The first speaker, Dr. Elisa Gambuzzi from CETENMA, explained the goals and deliverables of the project, specifying which fertilising products' value chains have been assessed according to a Life Cycle Sustainability Assessment (LCSA) methodology. Some insights on the social challenges linked to the circular fertilisers' value chains analysed, and more specifically their social acceptance, were presented, revealing the outcomes of a survey showing a moderate willingness from users to switch from mineral to circular fertilisers.

Second on the agenda was Dr. Stefanie Siebert, executive director of the European Compost Network, whose presentation centred on the importance of product quality derived from bio-waste recycling. First, she highlighted the role of bio-waste in achieving the goals of the EU Green Deal,

followed by a comprehensive overview of the ECN quality assurance scheme for compost and digestate that was set to have harmonised standards in the EU market, giving clear guidance on the various steps of the biological treatment of bio-waste. Dr. Siebert shared results on the ongoing EU funded Life BioBest project, where ECN is leading the work on the quality of feedstock and output materials from bio-waste recycling, as well as on the policy barriers that the sector currently faces. She closed her presentation with a short outline of market opportunities.

Dr. Irmgard Leifert from RETERRA was the third speaker of the seminar, giving an overview of the production of compost from bio-waste in Germany. Dr. Leifert brought RETERRA example on the management of bio-waste and green waste, giving a clear picture of the inputs accepted, the treatment options as well as the final products, including their marketing and intended use. Special attention in her presentation was given to compost certified according to the German national quality assurance scheme (RAL) and its fertilising and humus values. Finally, she addressed the technical, economic, environmental, social and regulatory drivers and barriers characterising the composting sector. In her recommendations, Dr. Leifert pointed to input materials and product status as key elements to factor in for the development of the market.

After a short break, Mr. Pascal Van Hove, from WATERLEAU company, took the floor as fourth speaker of the day. During his presentation, he introduced its business by describing the recovered products from manure processing, including digestate. Mr. Van Hove stressed the numerous barriers hampering its daily work, citing rules on nitrate limits, permitting on-field application times and high transport costs as the most relevant ones. He proposed some recommendations on better controls at source for manure management and reflected on the fragmentation of the EU market in the sector, as well as the difficulties to invest in the sector due to the regulatory uncertainties.

Concluding the round of speeches, Mr. Wim Moerman from NuReSys gave his insights on technologies to recover phosphate and produce struvite as fertiliser. Mr. Moerman emphasised the strengths characterising struvite, which could support different goals of the EU Green Deal and sustainable food production, still recognising that there are challenges to the mainstreaming of struvite and hurdles concerning production and competitiveness.

3.8.2. RELEVANT OUTCOMES FOR THE PROJECT

The presentations were followed by a lively discussion, with participants engaging in the debate and asking for more details on the production of these circular fertilisers as well as suggesting possible solutions to the obstacles hindering the further development of circular solutions for healthy soils. Against this background, based on the drivers and challenges that emerged, as well as the inputs from the audience, a number of conclusions can be drawn already:

1) ***Importance of circularity***

First and foremost, circularity of fertilising products is crucial for several objectives that the European Union has set in its different action plans. Their production can support Europe in reaching climate and environmental targets, as well as smoothing the path towards self-sufficiency and strategic autonomy. EU soils are in unhealthy state, partly due to the overwhelming use of synthetic inputs, depleting it of organic matter, biodiversity and polluting groundwaters. Circular soil improvers and fertilisers can be part of a broader set of sustainable soil management practices helping to regenerate EU lands. Moreover, the EU fertilising market has been subject to unpredictability and shocks due to vulnerable supply chains and unsteady relationships with third countries. Circular fertilisers could therefore be a solution to these disruptions.

2) ***Quality***

The quality of both production inputs and end products have to satisfy certain requirements. This is not only to ensure environmental safety, but to guarantee social acceptance and trust for the end users of circular fertilisers. By now the producers are the only ones who have the responsibility to generate a good quality product, whereas it should also be extended to the feedstock providers (i.e. citizens in the case of bio-waste).

Quality assurance, by certifying the qualitative aspects of these goods, can provide a solution in this respect. Still, technical and regulatory aspects at EU level are preventing already existing and long-experienced organisations from being accredited as certifying bodies.

3) ***Policy coherence***

To foster market development of circular fertilisers, policy coherence is essential. Operators need legal certainty and a supportive regulatory framework enabling them to access the European market and be competitive at EU level. Policy makers must be aware of the different existing realities and design flexible yet harmonised rules to address the concerns of circular fertiliser's producers, creating the conditions to make safe investments in the sector.

To this respect, is important to highlight that the European Commission will open a consultation to review nitrogen limits from manure set in the Nitrate Directive, where all stakeholders can provide their inputs as to improve the current regulatory framework.

4) ***Awareness***

Information, communication and dissemination of the potential benefits that circular fertilisers bring, not only to soils and ecosystems, but to other sustainability goals, is key to increase knowledge and reduce stigma over waste-derived resources. In this regard, bringing together stakeholders of the different steps in the value chain, law-makers as well as raising awareness to

consumers on their active role in fostering this circularity model are paramount to enhance the uptake of circular products.

3.9. Event with stakeholders from EU (26/06/2024)

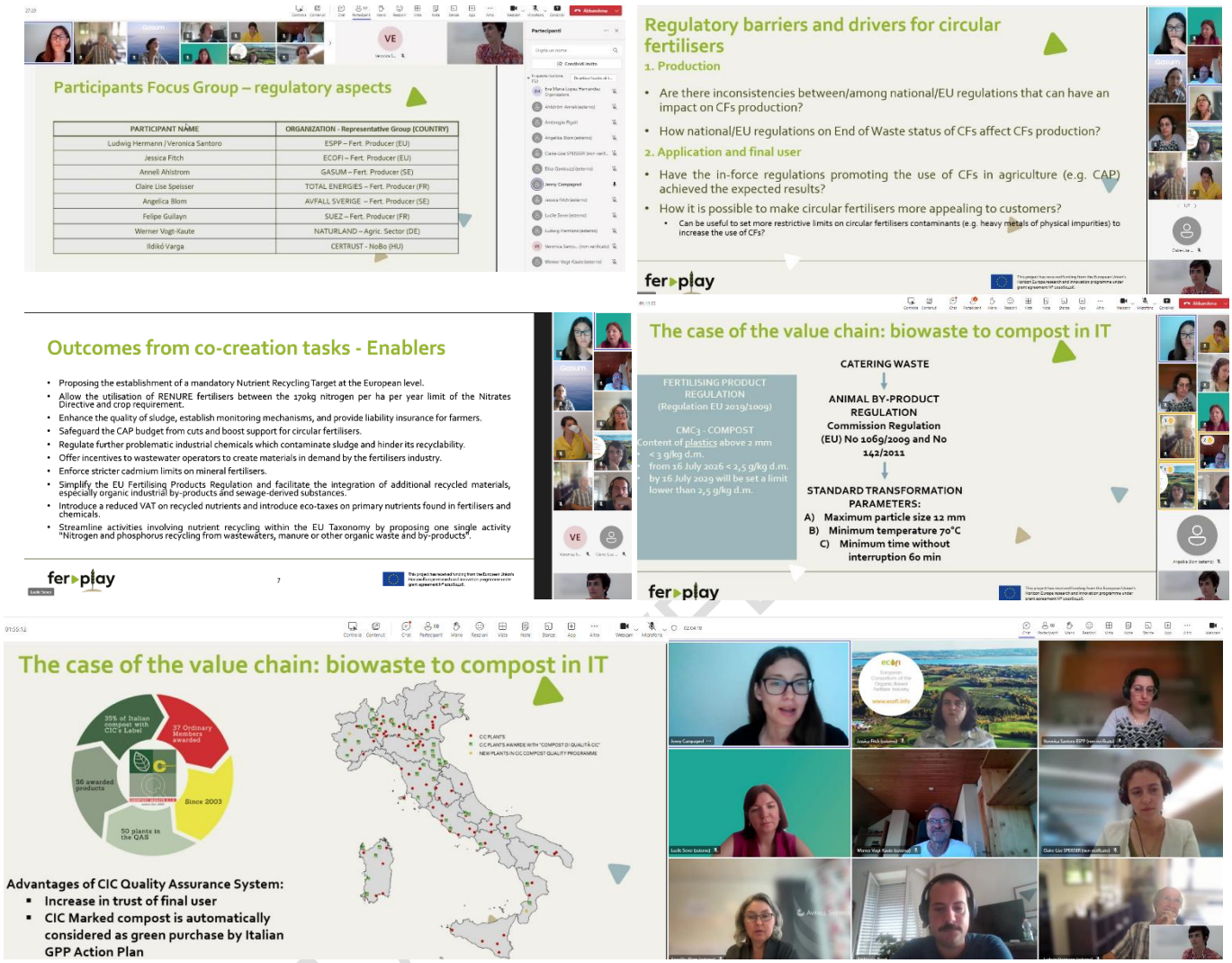
Table 31. Event Main Features (Focus Group on 26/06/2024)

Responsible partner:	CIC
Target public:	Producers, end-users, public administration
Type of event:	Focus Group
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event.
Main scope:	Discussing opportunities and barriers at regulatory level of the circular fertilisers market
Date (dd/mm/yyyy):	26/06/2024
Duration (hours):	2 hours
Impact:	12 participants (6 external stakeholders, who are fertiliser producers)

On 26/06/2024, CIC organised a Focus Group with external stakeholders dedicated to the discussion on the regulatory barriers/drivers of circular fertilisers market. Moderated by CIC, the event was designed as an open round table carried out online.

This event became also a complementary activity to the Regulatory Analysis which is performed by EBA within T2.6 of the project. Some pictures from the event are shown Figure 58.

Figure 58. Pictures from the Focus Group on 26/06/2024



3.9.1. SUMMARY OF THE DISCUSSION

CIC started the event by providing some hints of the institution and the role covered within FER-PLAY project as leader of the co-creation events. CETENMA took the floor to present the project, the outcomes achieved so far and the expected products delivered in the up-coming months.

After an introduction of the participants, EBA explained the research that has been carried out within the project regarding the regulatory framework and that has allowed to interview the most important referents at EU and national level of the 7 value chains assessed by the project to understand at 360 degrees the legal aspects enabling or restricting the uptake of circular fertilisers. So far, the project has received 16 answers: EU level (trade associations) x 3; Belgium x 3; Spain x 3; Germany x 2; Italy x 2; France; Denmark; Netherlands. Mostly compost, digestate,

struvite experts. The main conclusions from the analysis of regulatory incentives for circular fertilisers market coming from the survey are:

- Existing at EU level: carbon farming schemes, Fertilisers Product Regulation, Common Agriculture Policy, Soil Monitoring Law, Urban Waste Water Treatment Directive.
- Existing at national level: Spanish Law on Fertilisers products; obligation to recycle P in Sweden (+ quality assurance scheme for sewage sludge); Italian law on Fertilising products (includes CF).
- To be promoted: carbon farming/carbon sequestration schemes; reduced VAT on recycled nutrients; nutrient recycling target; RENURE.

The Figure 59 summarise the content of the discussion related to the value chains that were mainly addressed by the experts interviewed through the survey. All details from the analysis will be included in D2.2 to be delivered in August 2024. The possibility to contribute to this activity is still open through a survey, here.

After the summary of the main enablers highlighted by the external stakeholders interviewed, CIC promoted the discussion among the participants by rising questions to be done to the fertiliser producers and to the end-users and by showing some case of how the regulation afters the compost from bio-waste in Italy so as to serve as initial point for internal debates.

From the fertiliser production side:

- Are there inconsistencies between/among national/EU regulations that can have an impact on CFs production?
- How national/EU regulations on End of Waste status of CFs affect CFs production?

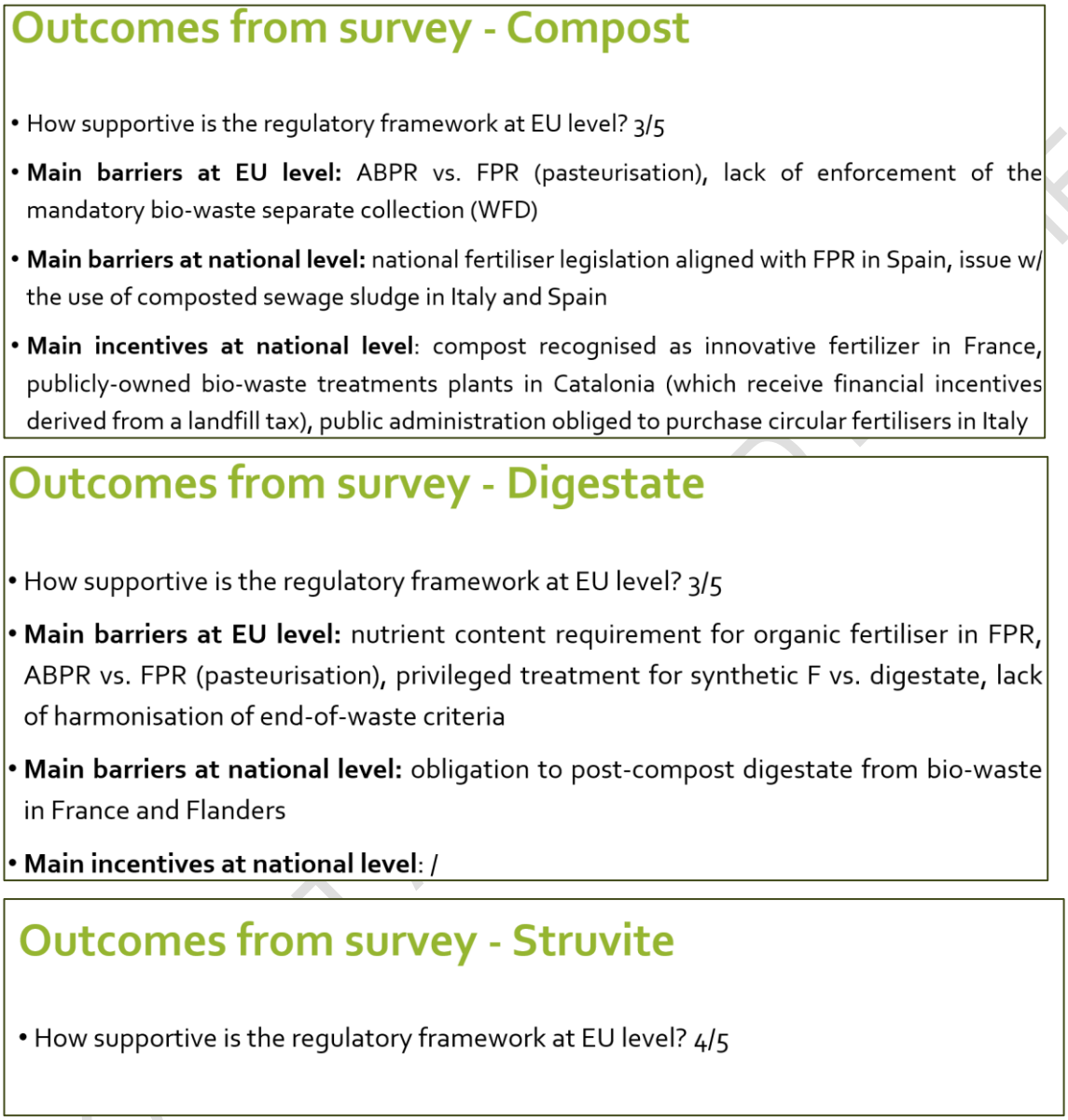
From the final user side:

- Have the in-force regulations promoting the use of CFs in agriculture (e.g. CAP) achieved the expected results?
- How it is possible to make circular fertilisers more appealing to customers?
- Can be useful to set more restrictive limits on circular fertilisers contaminants (e.g. heavy metals of physical impurities) to increase the use of CFs?

After a fruitful discussion of these aspects from the 2 sides, a final recap on best practices and ideas was brought to the field, once again providing the example of how the Quality Label developed by CIC in Italy for the compost from bio-waste has served to improve product

marketability and has been included as suitable product for the maintenance of public green areas within the Italian Green Public Procurement.

Figure 59. Pictures from the Regulatory Analysis provided by EBA during the Focus Group



3.9.2. RELEVANT OUTCOMES FOR THE PROJECT

The main conclusions, obtained from the survey and presented by EBA, on possible enablers for the uptake of circular fertiliser market are summarised below:

- Proposing the establishment of a mandatory Nutrient Recycling Target at the European level.

- Allow the utilisation of RENURE fertilisers between the 170 kg nitrogen per ha per year limit of the Nitrates Directive and crop requirement.
- Enhance the quality of sludge, establish monitoring mechanisms, and provide liability insurance for farmers.
- Safeguard the CAP budget from cuts and boost support for circular fertilisers.
- Regulate further problematic industrial chemicals which contaminate sludge and hinder its recyclability.
- Offer incentives to wastewater operators to create materials in demand by the fertilisers industry.
- Enforce stricter cadmium limits on mineral fertilisers.
- Simplify the EU Fertilising Products Regulation and facilitate the integration of additional recycled materials, especially organic industrial by-products and sewage-derived substances.
- Introduce a reduced VAT on recycled nutrients and introduce eco-taxes on primary nutrients found in fertilisers and chemicals.
- Streamline activities involving nutrient recycling within the EU Taxonomy by proposing one single activity “Nitrogen and phosphorus recycling from wastewaters, manure or other organic waste and by-products".

The main messages raised by participants during the focus group are:

- The Quality Assurance Systems are powerful tools to overcome the lack of trust from the consumer and, in some countries, are a key element to achieve the EoW status according to legislation.
- The Animal By-product Regulation presents a lack of consistency inside itself and with other EU legislations that hinders the potential of circular fertilisers market in EU.
- Struvite is a suitable fertiliser for organic farming, however there is a lack of knowledge on this fact due to complicated labelling system and not clear information from producers.
- In what regards the use of digestates from cattle farming, the organic farming national regulations across EU present an inconsistency of what is considered an “industrial livestock”.

Some final best practices to be replicated:

- Some countries (Germany, Switzerland and Austria) have set a minimum percentage of circular fertilisers to be included in the fertiliser market.
- Green Public Procurement is a good opportunity for the circular fertilisers market, as it has been the case of the Italian Quality Label for Compost accepted by the GPP as a guarantee of qualified and circular product.
- In some countries the food industry is setting plans to incentivise the use of circular fertilisers from their farmers.

3.10. Event with stakeholders from EU (24/10/2024)

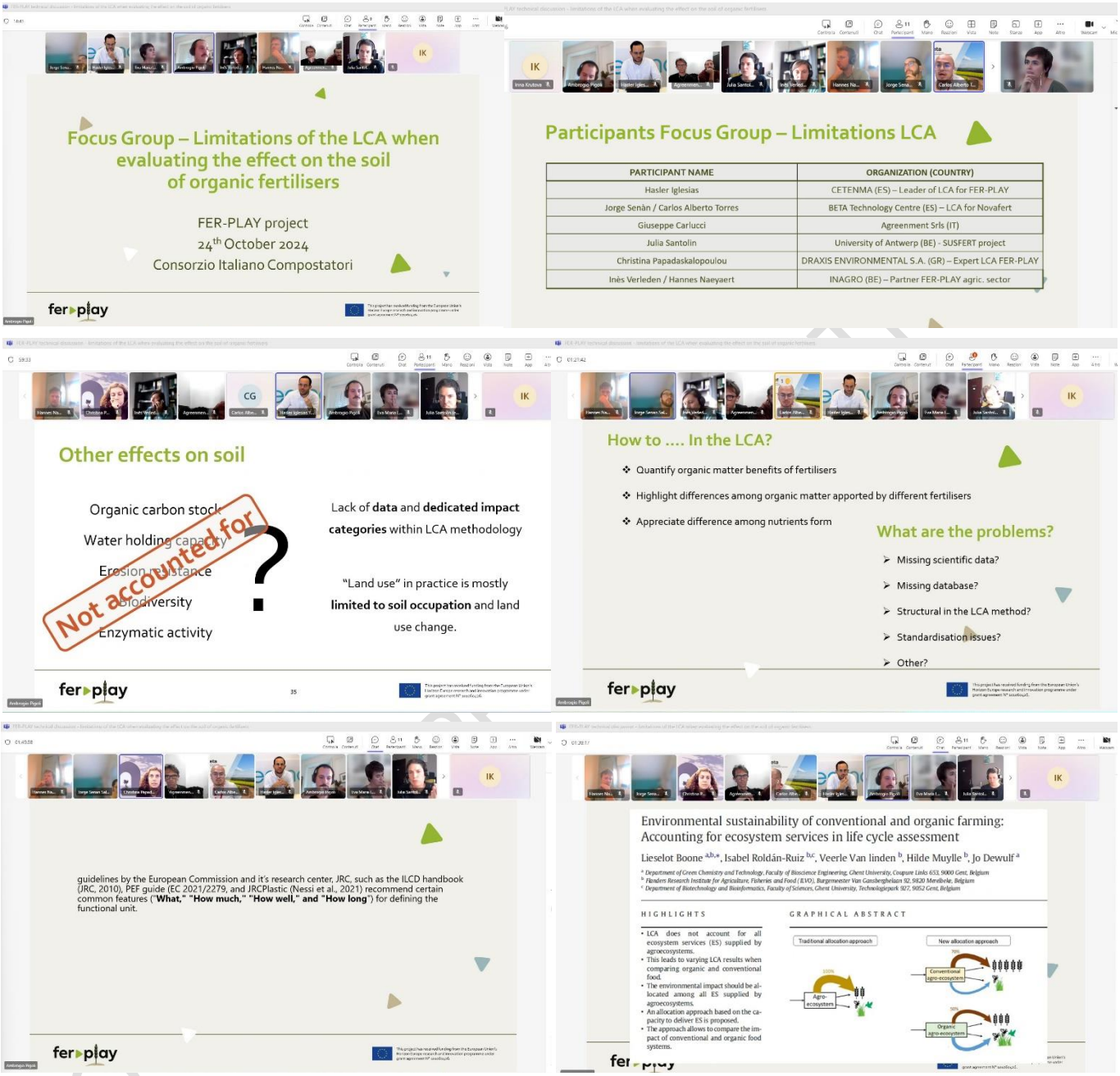
Table 32. Event Main Features (Focus Group on 24/10/2024)

Responsible partner:	CIC
Target public:	Experts on LCA
Type of event:	Focus Group
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event.
Main scope:	Technical discuss about the limitations of the LCA when evaluating the effect on the soil of organic fertilisers
Date (dd/mm/yyyy):	24/10/2024
Duration (hours):	2 hours
Impact:	10 participants (4 external stakeholders who are experts on LCA)

On 24/10/2024, CIC organised a Focus Group with external stakeholders dedicated to the discussion on the limitations that the LCA methodology currently presents when accounting the benefits of the application of organic fertilisers to the soil. Moderated by CIC, the event was designed as an open round table carried out online

Some pictures from the event are shown on Figure 60.

Figure 60. Pictures from the Focus Group on 24/10/2024



3.10.1. SUMMARY OF THE DISCUSSION

CIC started the event by providing some hints of the institution and the role covered within FER-PLAY project as leader of the co-creation events. After an introduction of the main project outcomes and methodology, the floor was given to the participants to present themselves highlighting the expertise on the topic of discussion. Among the stakeholders there were representatives of 2 EU projects (NOVAFERT and SUSFERT).

The discussion was initiated with a reminder to the participants on the fact that the benefits of the organic matter to the soil is scientifically well-known as explained by CIC through an analysis carried out across literature on studies including long time trials. However, when aiming to allocate these benefits within the project assessment it seems not to be easy.

CETENMA explained the FER-PLAY's approach to the LCA for the use of organic fertilisers on soils, detailing the functional unit and system boundaries taken into consideration and the emissions to air factors related to soil application applied. CETENMA highlighted the difficulties that the project has experienced when assessing the land use impact category that only accounts the production phase due to a lack of appropriate indicators and the impossibility to evaluate the other impacts related to the soil (as the carbon stock, the water holding capacity, the erosion resistance, biodiversity and the enzymatic activity linked to the application) due to lack of data and dedicated impact categories within the LCA methodology.

CETENMA finished their presentation by indicating the relevant challenges identified after the assessment, which are linked to develop a consistent and long-term record of emissions measurements, setting the foundation for local/regional level emission factors and to deep the understanding of the nutrient release dynamics and embed it into the LCA assessment to evaluate correctly some impacts like the eutrophication risks.

At this point, CIC foster the discussion among participants by asking the LCA experts where the existing problems are for quantifying the organic matter benefits, for highlighting the differences among the organic matter supplied by different organic fertilisers, and to appreciate the diverse chemical forms in which nutrients are present. CIC left an open question on the air: Where is the problem? Missing scientific data or database used? Structural problems in the LCA methodology? Others?

The participants proposed some suggestions to improve the study and overcome the identified barriers:

- To conduct the assessment, it is essential to firstly understand the function that each of fertiliser is fulfilling. This guide you on the approach you need to provide for the LCA. If the scope of applying the fertiliser is improve the water holding capacity, the LCA should evaluate water consumption of the final crop and the energy related consumption.
- There are already available soil model tools for accounting these aspects is RothC: https://www.rothamsted.ac.uk/rothamsted-carbon-model-rothc
- Regarding the datasets, LUCAS is an European survey carry out each 5 years. It collects the information of more than 20000 sampling points. Database contains information of several soil parameters such as SOC, bulk density, texture, CEC. https://esdac.jrc.ec.europa.eu/projects/lucas

- The International Soil Modelling Consortium compile a lot models to assess soil properties some of this models have been coupled with LCA. https://soil-modeling.org/
- It is necessary to include in the overall study non LCA indicators like the ones included in the FAO Protocol for the assessment of sustainable soil management. www.fao.org/fileadmin/user_upload/GSP/SSM/SSM_Protocol_EN_006.pdf
- Carbond tool (https://www.carbond.eu/) may be of interest since it is based on the APEX (Agricultural Policy/Environmental eXtender) model. Even tough it is still a work in progress (blockchain will be soon applied for traceability of results), it is currently set up for two regions in Southern Italy.

3.10.2. RELEVANT OUTCOMES FOR THE PROJECT

The three main relevant messages to take into consideration for the LCA that FER-PLAY is carrying out are:

- LCA cannot account everything and to reach a holistic assessment, LCA practitioners should also consider non-LCA indicators.
- When defining the functional unit is is important to define: “What”, “How much”, How well” and “How long” to have an overall overview of the studied system.
- As a general thought, trying to cover the whole impact with one answer will imply missing interesting points/situations/realities and have an important amount of uncertinties/lack of representativeness. The differences in pedoclimatic conditions make very difficult the assessment on soils since the application of a certain fertiliser have different effect depending on them. Therefore the analysis should be done taking into account regions with same pedoclimatic conditions and then improve the model with a specific crop/conditions/final product.

4. Co-creation events with public administration

Public administrations have an essential role on the promotion of the production and use of circular fertilisers in their territory, and so they have been considered an important group to be involved within project co-creation events.

Discussions with this group have included two main topics: (1) the sharing of best practices among them, which may have an effect on those who are aiming to put in place a strategy to trigger the deployment of these fertilisers; (2) a dialogue on the main regulatory barriers that currently hinder the development of the market for circular fertilisers.

Main outcomes from the discussions are included in the guidelines (D3.3 "Recommendations for Public Administrations") elaborated by FER-PLAY project targeting the public administrations and to the assessment of the Regulatory Framework performed in WP2 "Multi-assessment of impacts, trade-offs and framework conditions of selected alternative fertiliser value chains".

The following Table 33 provides the main data related to the commitments from these events and the achievements obtained.

Table 33. Commitments linked to the co-creation activities dedicated to the public administration and policy officers

Commitment targeting the policy-markers	Achieved value
2 working-groups with administrations	2
5-10 administrations invited to the working group	19
Number of participants to the online meetings (from the 3 target groups)	29
Participants to the working group (including those beyond the administrations)	77
3 meetings with stakeholders	5
1 final workshop celebrated	1
30 policy officers/makers participating in a final workshop	19
Number of participants to the meetings/final workshop (from the 3 target groups)	113
Participants to the meetings and final workshop	304

As detailed above, the project has organised 8 co-creation events thanks to the efforts of partners EBA and ACR+, gathering a total of 381 participants into discussions. The following sections detail the main features and outcomes resulting from each of them.

4.1. Event with stakeholders from EU (18/09/2023)

Table 34. Event Main Features (Meeting on 18/09/2023)

Responsible partner:	EBA
Target public:	Policy officers from EU organisations, researchers
Type of event:	Meeting
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event
Main scope:	Discussing challenges and opportunities for circular fertilisers at EU regulatory level
Date (dd/mm/yyyy):	18/09/2023
Duration (hours):	1 hour
Impact:	51 participants (9 fertiliser producers; 5 representatives of PA)

The first session of the event entitled "Towards the co-creation of better regulation frameworks for circular fertilisers" was held online on 18/09/2023.

The agenda of the Event is shown in the following Figure 61.

Figure 61. Agenda of the meeting on 18/09/2023

Towards the co-creation of better regulation frameworks for alternative fertilisers

Organised by FER-PLAY

Programme

18 & 28 September 2023 – Via Microsoft Teams

FER-PLAY aims at facilitating the uptake of alternative fertilisers to protect ecosystems, decrease EU dependence on fertiliser imports, foster circularity, and improve soil health. The project will map and assess alternative fertilisers made from secondary raw materials, such as manure, and highlight their multiple benefits in order to promote their wide-scale production and use on field.

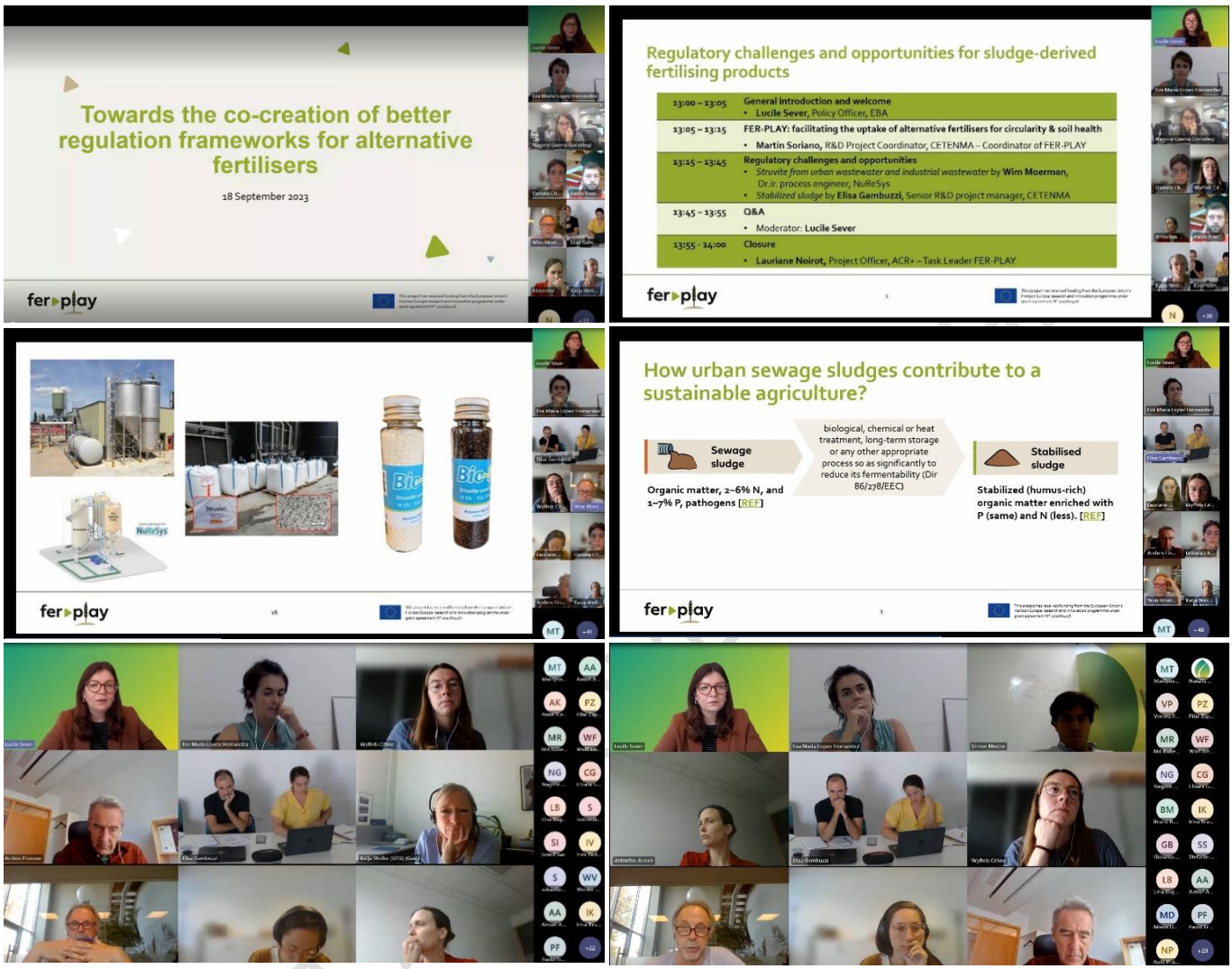
As a first step in the project, seven alternative fertiliser value chains have been selected based on a multi-assessment analysis: struvite from urban wastewater, struvite from industrial wastewater, stabilized sludge, composted bio-waste, feather meal, solid fraction of digestate and champost. Now, two online meetings will be organized to discuss regulatory challenges and opportunities faced by the selected products. Conclusions drawn from the meetings will help to elaborate policy recommendations to contribute to favourable regulatory conditions for the uptake of these alternative fertilisers.

Hour	Activity
Day 1: Monday 18 September 2023 - Regulatory challenges and opportunities for sludge-derived fertilising products	
13:00 – 13:05	**General introduction and welcome** • **Lucile Sever**, Policy Officer, EBA
13:05 – 13:15	**FER-PLAY: facilitating the uptake of alternative fertilisers for circularity & soil health** • **Martin Soriano**, R&D Project Coordinator, CETENMA – Coordinator of FER-PLAY
13:15 – 13:45	**Regulatory challenges and opportunities** • *Struvite from urban wastewater and industrial wastewater* by **Wim Moerman**, Dr.ir. process engineer, NuReSys • *Stabilized sludge* by **Elisa Gambuzzi**, R&D Technician, CETENMA
13:45 – 13:55	**Q&A** • Moderator: **Lucile Sever**

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

In Figure 62 some screenshots taken during the online meeting are presented.

Figure 62. Screenshots from the meeting on 18/09/2023



4.1.1. SUMMARY OF THE DISCUSSION

EBA introduced the meeting's content: one of the projects' goals is to co-create a better regulatory framework for a set of circular fertilisers. External stakeholders were invited to interact via Sli.do during the meeting, which was managed by CIC. The Sli.do poll showed that most of the participants were researchers or other types of stakeholders (biogas sector, water and wastewater sector, farmers associations, etc.). It appears that many participants were actually potential fertilisers producers even if they might not identify as such and policy officers from industry associations at national and EU level.

Three presentations from FER-PLAY partners were delivered:

- CETENMA introduced the overall scope and content of the project. The Sli.do poll indicated that the majority of the participants were aware of administrative/regulatory barriers for the deployment of circular fertilisers in general but not necessarily for the deployment of struvite and stabilised sludge.

- NuReSys presented regulatory challenges and opportunities for struvite originated from urban and industrial wastewater, two of the seven value chains selected in FER-PLAY. Regarding the legal framework, the Fertilising Products Regulation 2019/1009 provided an end-of-waste status to struvite but there are remaining regulatory barriers resulting from specificities in different EU countries. The majority of participants considered, based on the Slido poll, that the Fertilising Product Regulation had mostly created a confident framework for the market uptake of struvite.

- CETENMA presented regulatory challenges and opportunities for stabilised sludge (that has undergone a biological, chemical or heat treatment) in agriculture. Compost and digestate from sewage sludge is still not covered by the Fertilising Products Regulation. The main barrier to sewage sludge application in agriculture is Directive 86/278/EEC. The Sli.do poll indicates that circa half of the audience knew about the revision of this Directive, and the other half was not aware.

EBA moderated the Q&A session, participants were active. Speakers answered to the following questions during the session:

- How can we create a 'pull' factor in the market, i.e. demand for sludge-derived fertilisers when they are not price-competitive? NuReSys suggested to have a regulatory incentive for recycled nutrients in the composition of fertilising products or a tax relief. CETENMA indicated that, before even questioning the marketability of sludge-derived fertilisers, it is important to avoid the preclusion of the application of sewage sludge as part of the revision of the Sewage Sludge directive while guaranteeing the safety of the soils and consumers.

- Is there a reason why regulations and directives are so strict in regard to sewage sludges? CETENMA indicated that pathogens, contaminants as heavy metals, antibiotics concentrate in sewage sludge so it is necessary to limit the concentration of contaminants. Nevertheless, wastewater treatment plants need to be in condition to create sewage sludges that comply with new regulations. These conditions can be enabled by financing new treatment lines that are more technologically advanced.

- Considering the technological units needed to obtain a high purity struvite, particularly when sludge is used as feedstock, is it still cost-effective? NuReSys highlighted that the struvite technology should be used for phosphorus control and the production of end-product struvite should only be considered an added value. Implementing struvite technology just for the revenue of selling the product is economically difficult.

- There are some highly stressed areas in which manure or digestate from biowaste are preferred for agriculture rather than sludge. In those locations, what are the circulars for sludge? NuReSys answered that there is indeed a competition for the application of manure or sewage-derived fertilisers on those lands.

The Sli.do poll indicated that most of the participants believe that the main regulatory barrier for the uptake of circular fertilisers is the lack of recognition or difficult requirements in the Fertilising Products Regulation.

ACR+ thanked the participants and closed the meeting. Regarding policy incentives at EU level, the last Sli.do poll indicated that participants would support two solutions: rewarding the use of circular fertilisers through dedicated funding in the Common Agricultural Policy and incentivising the recycling of certain inputs materials to be used as circular fertilisers (e.g. biowaste).

4.1.2. RELEVANT OUTCOMES FOR THE PROJECT

Below some relevant outcomes for the project are presented:

- The sludge-derived circular fertilisers presented during the meeting generated a lot of interest from participants. Yet, major regulatory barriers are still hampering the uptake of these products.
- The main regulatory barrier according to the speakers and the participants appears to be the Fertilising Products Regulation even if it only restricts the marketability of the products, not their direct application. It might be relevant to elaborate a specific policy recommendation dedicated to barriers in the Fertilising Products Regulation.

4.2. Event with stakeholders from EU (28/09/2023)

Table 35. Event Main Features (Meeting on 28/09/2023)

Responsible partner:	EBA
Target public:	Policy officers from EU organisations, researchers
Type of event:	Meeting
Modality:	Online
Joint event with fellow project / FER-PLAY dedicated event:	FER-PLAY dedicated event
Main scope:	Discussing challenges and opportunities for circular fertilisers at EU regulatory level

Date (dd/mm/yyyy):	28/09/2023
Duration (hours):	1 hour
Impact:	49 participants (11 fertiliser producers; 1 representative of PA)

The second session of the event entitled "Towards the co-creation of better regulation frameworks for circular fertilisers" was held online on 28/09/2023.

The agenda of the Event is shown in the following Figure 63.

Figure 63. Agenda of the meeting on 28/09/2023

Towards the co-creation of better regulation frameworks for alternative fertilisers

Organised by FER-PLAY

Programme

18 & 28 September 2023 – Via Microsoft Teams

FER-PLAY aims at facilitating the uptake of alternative fertilisers to protect ecosystems, decrease EU dependence on fertiliser imports, foster circularity, and improve soil health. The project will map and assess alternative fertilisers made from secondary raw materials, such as manure, and highlight their multiple benefits in order to promote their wide-scale production and use on field.

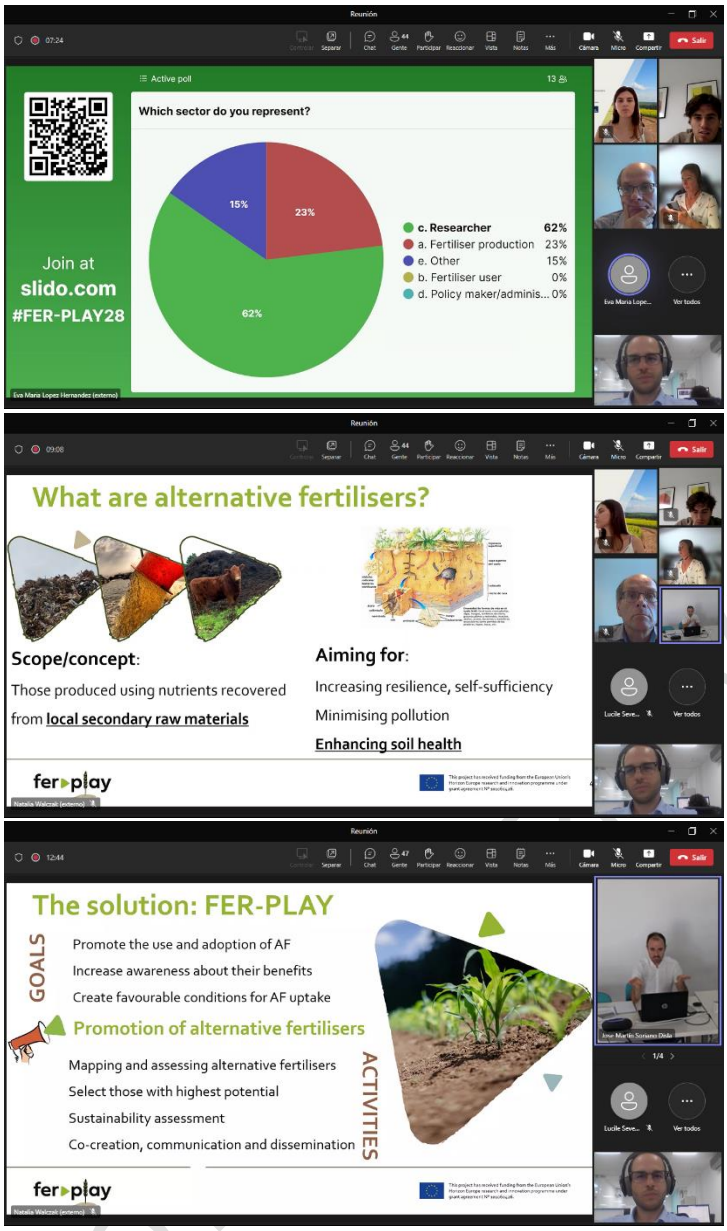
As a first step in the project, seven alternative fertiliser value chains have been selected based on a multi-assessment analysis: struvite from urban wastewater, struvite from industrial wastewater, stabilized sludge, composted bio-waste, feather meal, solid fraction of digestate and champost. Now, two online meetings will be organized to discuss regulatory challenges and opportunities faced by the selected products. Conclusions drawn from the meetings will help to elaborate policy recommendations to contribute to favourable regulatory conditions for the uptake of these alternative fertilisers.

Hour	Activity
Day 2: Thursday 28 September 2023 - Regulatory challenges and opportunities for various fertilising products	
13:00 – 13:05	**General introduction and welcome** • **Lucile Sever**, Policy Officer, EBA
13:05 – 13:15	**FER-PLAY: facilitating the uptake of alternative fertilisers for circularity & soil health** • **Martin Soriano**, R&D Project Coordinator, CETENMA – Coordinator of FER-PLAY
13:15 – 13:45	**Regulatory challenges and opportunities** • *Composted bio-waste from food waste and green compost* by **Ambrogio Pigoli**, Technical expert, CIC • *Feather meal* (tbc.) • *Solid fraction of digestate* by **Lucile Sever**, Policy Officer, European Biogas Association • *Champost* by **Kristof Gheysens**, Researcher, Inagro
13:45 – 13:55	**Q&A** • Moderator: **Lucile Sever**
13:55 - 14:00	**Closure** • **Lauriane Noirot**, Project Officer, ACR+ – Task Leader FER-PLAY

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

In Figure 64 some screenshots taken during the online meeting are presented.

Figure 64. Screenshots from the meeting on 28/09/2023



4.2.1. SUMMARY OF THE DISCUSSION

EBA welcomed the audience to the second online meeting of FER-PLAY project presenting the agenda.

External stakeholders were invited to interact via Sli.do during the meeting, which was managed by CIC. The Sli.do poll showed that the audience was split between researchers, fertiliser

producers or other types of stakeholders (biogas sector and associations). Again, many policy officers from industry associations at national and EU level were present.

Four presentations from FER-PLAY partners were delivered:

- CETENMA introduced again the overall scope and content of the project. The slido poll indicated that the majority of the participants were aware of administrative/regulatory barriers for the deployment of circular fertilisers in general but most of them were not aware barriers for the specific deployment of struvite and stabilised sludge.
- CIC presented regulatory challenges and opportunities for composted bio-waste from food and green waste. Compost is included in the Fertilising Products Regulation (inside classification PFC 3.A and CMC 3) but there are still discrepancies. The other main barrier is in the Animal By-Products Regulation. In the Sli.do poll, participants were split with regards to the possibility to produce compost with a CE mark in compliance with the FPR: some believe it will be possible, some think it will not be possible due to both technical and administrative issues or only due to administrative issues.
- CIC also presented regulatory challenges and opportunities for feather meal which main barrier is that even if covered by the Fertilising Products Regulation (classification PFC 1.A.I and CMC 1), an end-point is still lacking and restraining feather meal to be commercialised under CMC 10.
- EBA presented regulatory challenges and opportunities for the solid fraction of digestate. There are many various for the commercialisation or application of digestate depending on the feedstock used. Solid fraction of digestate is included in the Fertilising Products Regulation (PFC 1.A.I. or PFC 3.A, CMC 4 or 5) but there are still a lot of requirements that are impossible to meet. The Soil Monitoring Law is a good opportunity to promote the application of circular fertilisers, including digestate, as a sustainable soil management practice to be implemented at member state level. According to the Slido poll, participants believe that, with regards to digestate, priority should be given to tackling the remaining barriers for digestate in the Fertilising Products Regulation.
- INAGRO presented regulatory challenges and opportunities for Spent Mushroom Substrate (SMS) from Agaricus bisporus production. Under the Fertilising Products Regulation, SMS should be recognised under PFC 3.A (or PFC 4). Organic Soil Improver and CMC 10. However, an end-point is still lacking. The Slido poll indicates that participants believe that the recognition of SMS as an organic soil improver (PFC3A) will definitely give a boost to the commercialisation of this product.

Speakers answered to the following questions during the Q&A session moderated by EBA:

- Regarding CMC 3: COMMISSION DELEGATED REGULATION (EU) 2023/1605 of 22 May 2023 article 3 (c) defined the end-point for animal by-products based compost (given pasteurisation is done). Has this not solved the issue of animal by-products used as compost raw material? CIC indicated that for composting plant, it is not common to have pasteurisation, so there is still a major barrier. EBA indicated that for digestate, it is similar to compost, and with the new regulation, animal by-products could be included in component materials (CMC 5 for digestate). But it is still not clear if the Fertilising Product Regulation needs to be amended to reflect this new delegated regulation.

- Regarding selection of a PFC. If PFC 1 (A)(I) is hard to achieve with digestate alone, why not aim at PFC 1 (B) (I) and produce an organo-mineral fertiliser instead? That would require to upgrade with mineral fertilisers, but the obtained product may gain higher commercial and agronomical value? EBA answered that PFC 1. B is also an option for digestate producers. Nevertheless, there is a tendency at political level to support more and more the production of organic fertiliser (in Soil Monitoring Law, Common Agricultural Policy), this would not apply to organo-fertilisers.

- Gypsum is one of the input to SMS. Phospho-gypsum is a residue from fertiliser production, can that be used (or is it already used)? Most of the gypsum used in the Mushroom industry comes from the plastic board industry. For the phospho-gypsum, its applicability will depend also on prices.

- What do you understand under composted biological by-products? Why do you speak about biothermal drying, when you speak about composting? Biological By-products is another value chain; it comes from the agri-food industry. During bio-composting phase, the degradation of organic matter leads to a huge increase in temperature, this is the reasoning for biothermal drying.

According to the Sli.do polls, participants consider that the most restrictive regulatory barrier for the uptake of circular fertilisers is the restriction on the input materials to use in circular fertilisers (CMC) and the most important policy incentive is through the Common Agricultural Policy (followed closely by the incentivisation of recycling, e.g. biowaste).

EBA thanked the participants and closed the meeting.

4.2.2. RELEVANT OUTCOMES FOR THE PROJECT

Below some relevant outcomes for the project are presented:

- Again, the circular fertilisers presented during the meeting generated a lot of interest from participants. Yet, major regulatory barriers are still hampering the uptake of these products.

- A common regulatory barrier according to the speakers and the participants is again the Fertilising Products Regulation.

4.3. Event with public administration from EU (07/11/2023)

Table 36. Event Main Features (Working Group on 07/11/2023)

Responsible partner:	ACR+
Target public:	Regional Public Administration (but the meeting was open to all interested stakeholders)
Type of event:	Working Group
Modality:	Online
Joint event with EU project /FER-PLAY dedicated event:	Several EU projects were invited to present: Novafert, CCRI, HOOP
Main scope:	To discuss best practices on the promotion of production/use of circular fertiliser + to gather information for the development of the policy briefs
Date (dd/mm/yyyy):	07/11/23
Duration (hours):	2.5 hours
Impact:	47 participants (6 representatives of PA; 3 farmers+technicians; 7 fertiliser producers)

A working group with representatives of Regional Public Administrations was organised online on 07/11/2023. Some CCRI Pilot members (Castilla y León) and sister European projects were invited to the event in order to present their Best Practices: Novafert – Enhancing the use of circular fertilisers, CCRI (Circular Cities and Regions Initiative) - Supporting Europe's circular economy at local and regional level, HOOP - Vitalise Europe's Urban Bioeconomy.

The agenda of the Event is shown in the following Figure 65.

Figure 65. Agenda of the Working Group on 07/11/2023

Towards the replicability of practices supporting the adoption and use of alternative fertilisers

Working group organised by FER-PLAY partners on 7/11/23

FER-PLAY aims at facilitating the uptake of alternative fertilizers to protect ecosystems, decrease EU dependence on fertilizer imports, foster circularity, and improve soil health. The project will map and assess alternative fertilisers made from secondary raw materials, such as manure, bio-waste, or wastewater sludge, and intend to highlight their multiple benefits in order to promote their wide-scale production and use on arable land.

The working group provides a room for discussion between frontrunners and regions aiming to support the uptake of alternative fertilisers by farmers. Frontrunners are, in this case, regional authorities that have supported the production and the use of alternative fertilisers and managed to either create a local market for alternative fertilisers or successfully convinced local players to effectively use them through policies, partnerships, or technical solutions. Several best practices will be presented followed by a Q&A session to discuss the content of the presentations. The discussion will target the topics of replicability, barriers, the use of alternative fertiliser in organic agriculture (among others). We therefore invite any regional authority interested in the topic of alternative fertiliser to join us in this working group. The data gathered during this working group will feed the content of a policy brief addressed to policy makers to deliver successful strategies and instruments for the market deployment of alternative fertilisers.

fer▸play

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

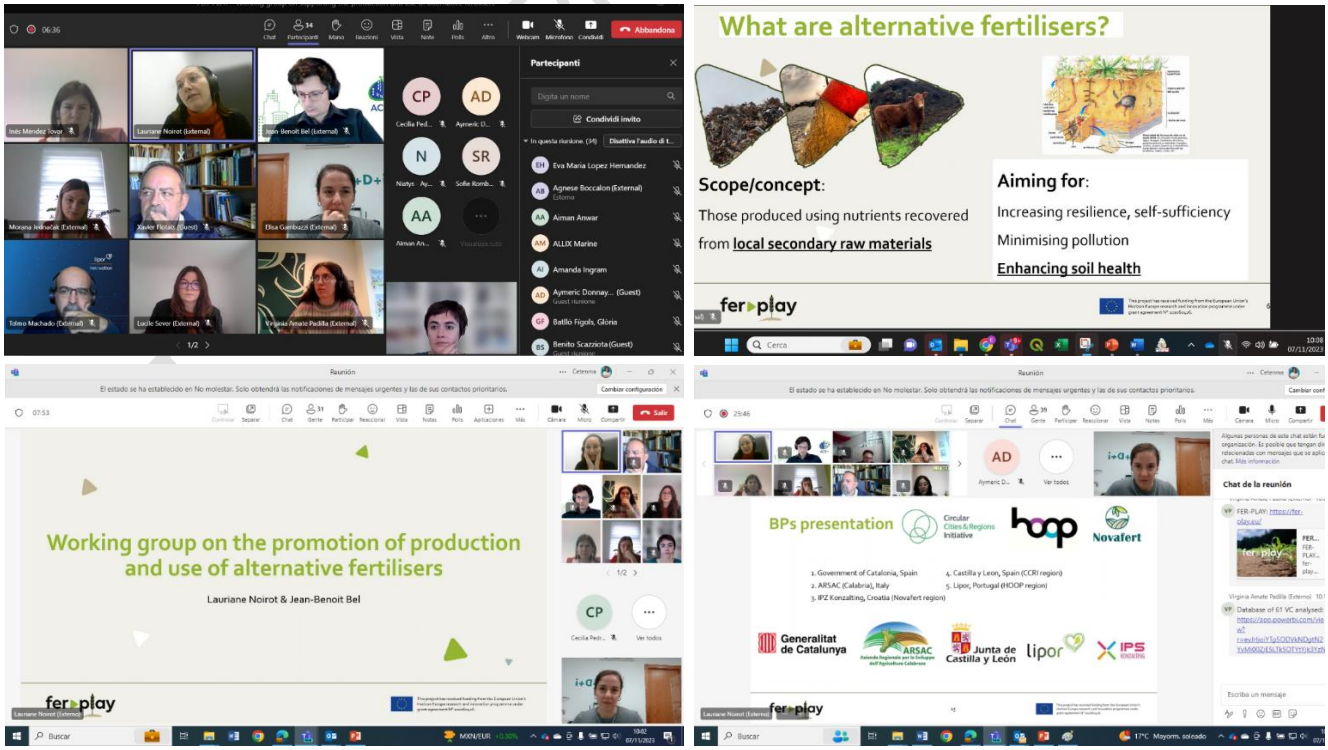
Time	Activity
10:00 – 10:10	Introduction
10:10 – 10:25	Presentation of the FER-PLAY project
10:25 – 11:15	Presentation of best practices supporting the promotion and use of alternative fertilisers • Government of Catalonia, Spain • Calabria (ARSAC), Italy • IPZ Konzalting, Croatia (Novafert region) • Castilla y Leon, Spain • Lipor, Portugal
11:15 – 11:45	Q&A on best practices
11:45 – 12:00	Interactive sessions on how to promote alternative fertilisers
12:00 – 12:15	Interactive session on using FER-PLAY as a support "tool" for your region
12:15 – 12:30	Conclusion

fer▸play

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

In Figure 66 some screenshots taken during the online Working Group are presented.

Figure 66. Screenshots from the online Working Group on 07/11/2023



4.3.1. SUMMARY OF THE DISCUSSION

The presentations of some Best Practices during the online Working Group.

- Catalonian biogas strategy involves the Waste Agency, together with the Energy and Agriculture Departments of the Region of Catalonia. Governance is made by the board of directors from different agencies/department, including citizens and farmers representatives. The focus is to do bio-fertilisers with different feedstock: bio-waste, manure, etc. mainly in N surplus areas. Some barriers were presented: (1) Confusing EOW (End-of-waste) criteria: adapt/clarify regulation; (2) Business model and economic balance: economic instruments to producers and users; (3) Process phase separation for digestate and then promotion of (liquid) digestate.

- The Agency for Agriculture development in Calabria Region has signed a framework programme to ensure the circularity of bio-waste in the Region. Two main actions are part of it: the monitoring of soil organic matter and nutrients in a detailed way from many years (in line with the future EU Soil Monitoring law) and the technical support to the bio-waste recycling sector to improve their recycling efficiency into high quality compost. The strategy of the Region involves collaboration with private entities (like the bio-waste recycling plants, the Italian Composting and Biogas Consortium, the farmers, the main farmers Association). Barriers are mainly financial, information/awareness and training.

- Croatia experience is considered a good practice because of stakeholder engagement, knowledge sharing and support to farmers. Barriers are: lack of information or access to info (older farmers), traditional practices, variability of soil, restrictive regulation, lack of support for users.

- Castilla-Leon (CCRI) strategy is based on the collaboration of the Environment Ministry, a fertiliser company, researchers, farmers through cooperatives. The barriers are: the low density, long distances for biowaste (decentralised management is the option), the regulation on ashes and on land use (long-time procedures), the fact that farmers prefer synthetic fertilisers (easier, bad past experience with sludge or low quality compost).

- LIPOR (Oporto Waste Management Company, participating to HOOP project) started in 1982 with already a brand “Fertor”, but it was coming from MBT (Mechanical–Biological Treatment), so the quality was low. Later a plant focusing on high-quality compost was designed, producing about 9,000 ton/year of compost “Nutrimais”. Barriers are still present along the value chain (collection, treatment with too many regulatory bodies, end-use: perceived as low-value product + acceptance)). They are carrying out a project of nutrient extraction from digestate + biochar.

In the second part of the online Working Group, there was a session dedicated to Questions and Answers where the most interesting points highlighted were the following:

- Subsidies for production plants are useful to bring prices down but also environmental labels for farmers can foster the change.
- Marketing of these circular fertilisers is a big challenge.

The Questions and Answers session was followed by the Interactive session which included some pools to which the participants were asked to answer.

The first poll was about the possibility of replication of Best Practices presented. 73% answered that the replication was possible; 6% assumes it is not possible to replicate; and about 20% answered that there was a need for more information in order to answer.

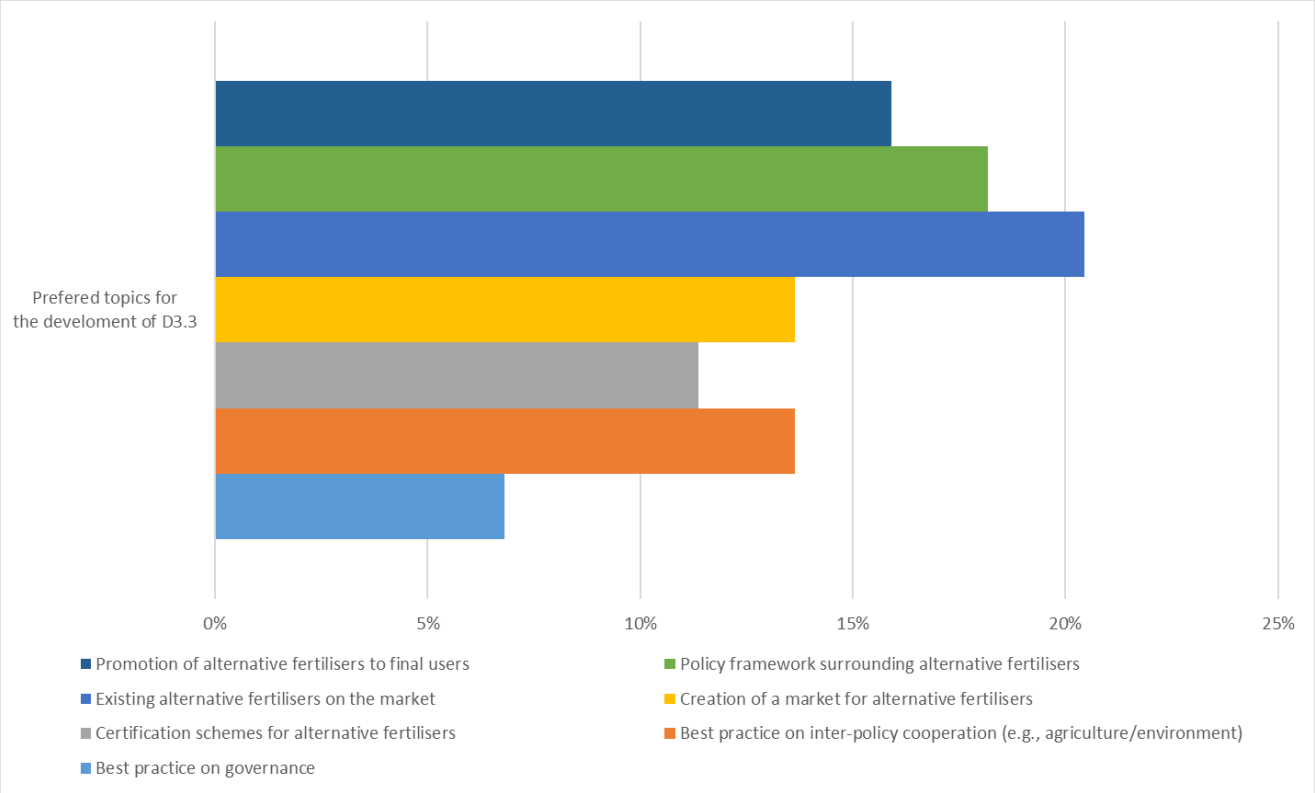
Then the participants who answered “Yes” to the first poll were asked why they supposed so. The answers were balances, generally the participants supposed that it was easy to adapt the local strategy to do.

4.3.2. RELEVANT OUTCOMES FOR THE PROJECT

The relevant result for the project of the online working group on 07/11/2023 consisted in the identification of useful/interesting Best Practices that could be used in the practical recommendations D3.3 which was being created at the moment.

On of the polls launched during the discussion was about the preferred topics to be addressed in the practical recommendations D3.3. The results of this poll are presented in the following Figure 67.

Figure 67. Results of the poll about the preferred topics for the development of D3.3



4.4. Event with public administration from EU (29/02/2024)

Table 37. Event Main Features (Conference on 29/02/2024)

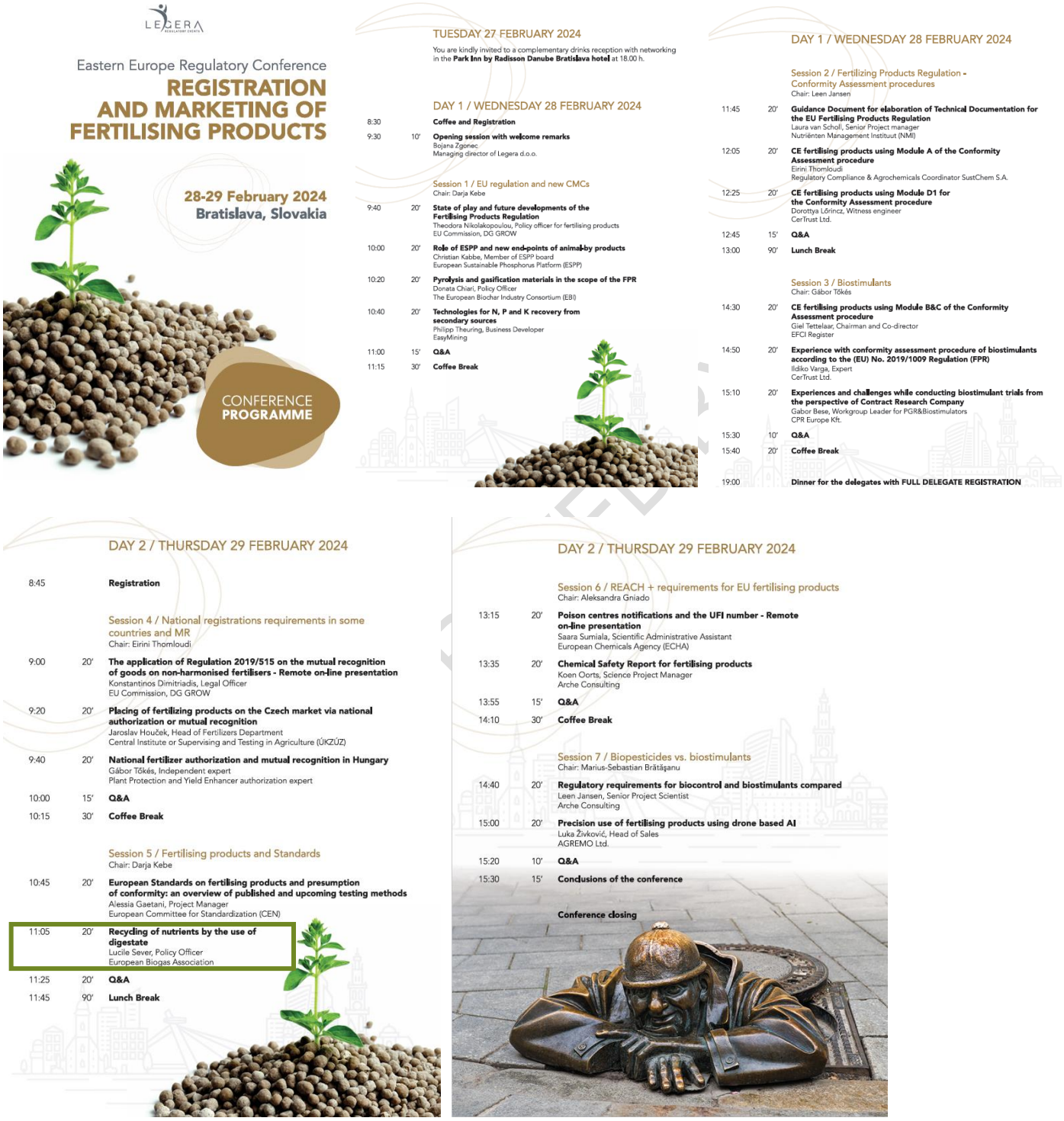
Responsible partner:	EBA
Target public:	Public administration and policy officers
Type of event:	Presentation in a conference
Modality:	In person
Joint event with EU project /FER-PLAY dedicated event:	Event inside the Eastern Europe Regulation Conference
Main scope:	Collecting feedback on challenges and opportunities for circular fertilisers
Location (Country acronym)	SK
Date (dd/mm/yyyy):	29/02/2024
Duration (hours):	40 minutes

Impact:	66 participants (8 from Public Administration and policy officers; 1 representative of the agriculture sector; 17 representative of fertiliser producers)

EBA took an opportunity of the Eastern Europe Regulatory Conference, which was held on from 28/02/2024 to 29/02/2024 in Bratislava, Slovakia, to gather insights on challenges and opportunities for the supply and demand of circular fertilisers from the representatives from local administration and policy officers who participated in the Conference. On 29/02/2024 EBA (Lucile Sever, Policy Officer for Circular Economy) shared EBA's research findings regarding the amount of digestate generated in Europe, its potential as a substitute for synthetic fertilisers, its ability to store carbon, and the different current applications it has.

The agenda of the Conference is presented in the following Figure 68. The part related to FER-PLAY project took place on 29/02/2024, it is highlighted dark green in the agenda.

Figure 68. Agenda of the Conference on 28-29/02/2024 in Slovakia



Eastern Europe Regulatory Conference

REGISTRATION AND MARKETING OF FERTILISING PRODUCTS

28-29 February 2024
Bratislava, Slovakia

CONFERENCE PROGRAMME

TUESDAY 27 FEBRUARY 2024

You are kindly invited to a complementary drinks reception with networking in the **Park Inn by Radisson Danube Bratislava hotel** at 18.00 h.

DAY 1 / WEDNESDAY 28 FEBRUARY 2024

8:30 **Coffee and Registration**

9:30 10′ **Opening session with welcome remarks**
Bojana Zgonec
Managing director of Legera d.o.o.

Session 1 / EU regulation and new CMCs
Chair: Darja Kebe

9:40 20′ **State of play and future developments of the Fertilising Products Regulation**
Theodora Nikolakopoulou, Policy officer for fertilising products
EU Commission, DG GROW

10:00 20′ **Role of ESPP and new end-points of animal-by products**
Christian Kabbe, Member of ESPP board
European Sustainable Phosphorus Platform (ESPP)

10:20 20′ **Pyrolysis and gasification materials in the scope of the FPR**
Donata Chiari, Policy Officer
The European Biochar Industry Consortium (EBI)

10:40 20′ **Technologies for N, P and K recovery from secondary sources**
Philipp Theuring, Business Developer
EasyMining

11:00 15′ **Q&A**

11:15 30′ **Coffee Break**

DAY 1 / WEDNESDAY 28 FEBRUARY 2024

Session 2 / Fertilizing Products Regulation - Conformity Assessment procedures
Chair: Leen Jansen

11:45 20′ **Guidance Document for elaboration of Technical Documentation for the EU Fertilising Products Regulation**
Laura van Scholl, Senior Project manager
Nutriënten Management Instituut (NMI)

12:05 20′ **CE fertilising products using Module A of the Conformity Assessment procedure**
Eirini Thomloudi
Regulatory Compliance & Agrochemicals Coordinator SustChem S.A.

12:25 20′ **CE fertilising products using Module D1 for the Conformity Assessment procedure**
Dorottya Lőrincz, Witness engineer
CerTrust Ltd.

12:45 15′ **Q&A**

13:00 90′ **Lunch Break**

Session 3 / Biostimulants
Chair: Gábor Tőkés

14:30 20′ **CE fertilising products using Module B&C of the Conformity Assessment procedure**
Giel Tettelaar, Chairman and Co-director
EFCI Register

14:50 20′ **Experience with conformity assessment procedure of biostimulants according to the (EU) No. 2019/1009 Regulation (FPR)**
Ildikó Varga, Expert
CerTrust Ltd.

15:10 20′ **Experiences and challenges while conducting biostimulant trials from the perspective of Contract Research Company**
Gabor Bese, Workgroup Leader for PGR&Biostimulators
CPR Europe Kft.

15:30 10′ **Q&A**

15:40 20′ **Coffee Break**

19:00 **Dinner for the delegates with FULL DELEGATE REGISTRATION**

DAY 2 / THURSDAY 29 FEBRUARY 2024

8:45 **Registration**

Session 4 / National registrations requirements in some countries and MR
Chair: Eirini Thomloudi

9:00 20′ **The application of Regulation 2019/515 on the mutual recognition of goods on non-harmonised fertilisers - Remote on-line presentation**
Konstantinos Dimitriadis, Legal Officer
EU Commission, DG GROW

9:20 20′ **Placing of fertilizing products on the Czech market via national authorization or mutual recognition**
Jaroslav Houček, Head of Fertilizers Department
Central Institute or Supervising and Testing in Agriculture (ÚKZÚZ)

9:40 20′ **National fertilizer authorization and mutual recognition in Hungary**
Gábor Tőkés, Independent expert
Plant Protection and Yield Enhancer authorization expert

10:00 15′ **Q&A**

10:15 30′ **Coffee Break**

Session 5 / Fertilising products and Standards
Chair: Darja Kebe

10:45 20′ **European Standards on fertilising products and presumption of conformity: an overview of published and upcoming testing methods**
Alessia Gaetani, Project Manager
European Committee for Standardization (CEN)

11:05 20′ **Recycling of nutrients by the use of digestate**
Lucile Sever, Policy Officer
European Biogas Association

11:25 20′ **Q&A**

11:45 90′ **Lunch Break**

DAY 2 / THURSDAY 29 FEBRUARY 2024

Session 6 / REACH + requirements for EU fertilising products
Chair: Aleksandra Gniado

13:15 20′ **Poison centres notifications and the UFI number - Remote on-line presentation**
Saara Sumiala, Scientific Administrative Assistant
European Chemicals Agency (ECHA)

13:35 20′ **Chemical Safety Report for fertilising products**
Koen Oorts, Science Project Manager
Arche Consulting

13:55 15′ **Q&A**

14:10 30′ **Coffee Break**

Session 7 / Biopesticides vs. biostimulants
Chair: Marius-Sebastian Brătăşanu

14:40 20′ **Regulatory requirements for biocontrol and biostimulants compared**
Leen Jansen, Senior Project Scientist
Arche Consulting

15:00 20′ **Precision use of fertilising products using drone based AI**
Luka Živković, Head of Sales
AGREMO Ltd.

15:20 10′ **Q&A**

15:30 15′ **Conclusions of the conference**

Conference closing

The photos taken during the Conference are presented in the Figure 69.

Figure 69. Pictures from the Conference on 29/02/2024 in Slovakia

4.4.1. SUMMARY OF THE DISCUSSION

EBA highlighted specific regulatory obstacles and potential opportunities encountered by producers and end-users. These regulatory examples, derived from digestate, can be applied to the other circular fertilisers selected in FER-PLAY project. Regulatory challenges were identified within key European regulations such as the EU Fertilising Products Regulation, the Nitrates Directive, the Animal By-Products Regulation, and the Sewage Sludge Directive. Conversely, regulatory opportunities were identified through legislations like the proposed Soil Monitoring Law, the Carbon Removal Certification Framework, the Urban Wastewater Treatment Directive, and the Waste Framework Directive.

Following the presentation, a panel discussion was facilitated featuring Lucile Sever from EBA and Alessia Gaetani from the European Committee for Standardisation (CEN). This provided an opportunity to delve deeper into policy obstacles, with a particular emphasis on the Fertilising Products Regulation, a central theme of the conference.

During the audience discussion, valuable insights were shared regarding policy barriers and opportunities:

- The lack of harmonisation of end-of-waste criteria across Europe is hindering the commercialisation of circular fertilisers in various countries, where these products are sometimes still perceived as waste, leading to limited social acceptance.

- While the EU Fertilising Products Regulation presents an opportunity for aligning circular fertilisers, its complexity poses a challenge. Some products are not covered by the Regulation, or the stringent requirements make compliance difficult. In addition, the Regulation's implementation remains incomplete in certain aspects (e.g., absence of notified bodies in some countries, unfinished testing methods).
- There is a call to reassess the waste hierarchy in the Waste Framework Directive to promote the reuse and recycling of organic materials.

4.4.2. RELEVANT OUTCOMES FOR THE PROJECT

In order for the EU to fully leverage its potential and establish a market for circular fertilisers, the EU Fertilising Products Regulation must be further enhanced by incorporating new products and streamlining certain requirements.

4.5. Event with public administration from EU (13/03/2024)

Table 38. Event Main Features (Conference on 13-14/03/2024)

Responsible partner:	EBA
Target public:	Public administration and policy officers
Type of event:	Presentation inside a Conference
Modality:	In person
Joint event with EU project /FER-PLAY dedicated event:	Event inside the ESPP workshop
Main scope:	Collecting feedback on challenges and opportunities for circular fertilisers
Location (Country acronym)	BE
Date (dd/mm/yyyy):	13/03/2024
Duration (hours):	1 hour 10 minutes
Impact:	87 participants (20 from Public Administration and policy officers; 12 representative of the fertiliser producers)

On 13/03/2024 EBA (Lucile Sever, Policy Officer for Circular Economy) delivered a presentation at a conference organised by ESPP on "Policy tools to support market pull for recycled nutrients."

The event brought together numerous policy officers from the industry and representatives from EU projects involved in nutrient recycling to collaborate on identifying common policy tools.

The agenda of the Event is available in the following Figure 70. The part of the Conference related to FEP-PLAY project is highlighted dark green.

Figure 70. Agenda of the Conference on 13-14/03/2024 in Belgium

European Sustainable Phosphorus Platform

Wed. 13th March: policy tools to support market pull for recycled nutrients
Thur. 14th March: EU Urban Waste Water Treatment Directive targets for P and N recovery

Brussels & online www.phosphorusplatform.eu/nutrientevents2024

Registration: https://www.eventbrite.be/e/espp-workshops-on-nutrient-recycling-policy-tickets-780632210957

Day 1 – 13th March: Policy tools to support market pull for recycled nutrients

The EU Green Deal refers to "*legal requirements to boost the market for secondary raw materials,*" and the EU Circular Economy Action Plan 2020 to "*stimulating the markets for recovered nutrients*". To date, there are no EU proposals to take this forward.

There are differing industry and user positions on possible market policy tools, including: fiscal (differentiated VAT, ecotaxes …), targeted farmer CAP funding, labelling, recycled nutrient quotas in products, border adjustment mechanisms, monetarisation of externalities, public procurement …

This workshop aims to define policies which could achieve consensus across recycled product producers (waste companies, recycling technology suppliers) and users (fertilisers industries, distributers, farmers).

Registration *https://www.eventbrite.be/e/espp-workshops-on-nutrient-recycling-policy-tickets-780632210957*

9h30 – 11h00	**European Commission** (Stephanos Kirkagaslis, DG AGRI) and DG GROW (TBC): objectives for markets for recycled materials (especially nutrients) in the Green Deal and Circular Economy Action Plan, coherence with ensuring farmer income (CAP), policy actions to date, limits to EU action on economic and fiscal policies **Copa-Cogeca** (Dominique Dejonckheere): opportunities and challenges for farmers **Ex'TAX** (Femke Groothuis): fiscal tools and tax shift to support recycling **ESPP:** outline of different possible market pull policy tools, proposed for discussion *Discussion*
11h00 – 11h30	Coffee break
11h30 – 13h00	**Industry proposals and positions:** - water industry and recovery: **EurEau** (Sébastien Mouret), **SUEZ** (Nicole Couder), **UKWIR** and UK Water Industry Resource Recovery Working Group (Robert Naylor, Thames Water), **AquaMinerals** – The Netherlands (Olaf van de Kolk) - fertilisers industry: **Fertilizers Europe** (Nicolas Willaume, ICL) - waste/recycling industry: **FEAD** (Paolo Campanella), **European Biogas Association** (Lucile Sever) *Discussion*
13h00 – 14h00	Lunch break
14h00 – 15h30	**Policy recommendations and considerations from R&D and from different countries** - Proposals for policy under discussion in EU Horizon projects on "Closing the nutrients cycles": **Fertimanure, Lex4Bio, Walnut, Sea2Land** and **Rustica "** (Ana Robles Aguilar, BETA Technological Center) - **Lex4Bio** (Marzena Smol, Mineral and Energy Economy Research Institute of the Polish Academy of Sciences) - **Sweden**: Anders Finnson (Svenskt Vatten) - **Italy**: Roberta De Carolis, Piattaforma Italiana del Fosforo (ENEA) - **Germany**: German Phosphorus Platform political memorandum (Christian Kabbe, DPP Board and EasyMining) *Discussion*
15h30 – 16h00	Coffee break
16h00 – 17h30	**Panel-led discussion with participants:** which proposals might find consensus? how to move from nice idea to actionable (and costed) policy proposals?
17h30 – 21h00	**Networking drinks and stand-up dinner**

European Sustainable Phosphorus Platform

Day 2 – 14th March: targets for nutrient reuse & recycling under the Urban Waste Water Treatment Directive (UWWTD) revision

The proposed Urban Waste Water Treatment Directive (UWWTD) revision draft text (art. 20) states: "*The Commission is empowered to adopt delegated acts … setting out the minimum reuse and recycling rates for phosphorus and nitrogen …*" (initial text as proposed by the European Commission, trilogue text is now validated and expected to be available soon).

The meeting aims to identify key questions and define a framework for proposing for such "reuse & recycling rates" for phosphorus and nitrogen from municipal wastewater.

Registration *https://www.eventbrite.be/e/espp-workshops-on-nutrient-recycling-policy-tickets-780632210957*

9h30 – 11h00	**Update on UWWTD revision.** The Parliament-Council final compromise text is expected to be public by the meeting date and **summary of existing P-recovery obligation regulations in Germany, Switzerland.** **Outline of questions and framing to be considered in defining** *"minimum reuse and recycling rates for phosphorus and nitrogen"* **Industry considerations and questions raised** **- Eureau** **- Aquapublica** (TBC) **- UKWIR** - Mark Craig (Severn Trent) **- Netherlands Water Authorities** - Aalke Lida de Jong (AquaMinerals BV) **- Water Europe** - Martijn Bijmans (Wetsus) *General discussion. Agreement on the questions to be considered.*
11h00 – 11h30	Coffee break
11h30 – 13h00	**Proposals for minimum reuse and recycling rates considering different technologies and approaches** - pure nutrient salt recovery – Christian Kabbe (EasyMining) - struvite recovery – Aiman Anwar (NuReSys) - P2GreeN - Stefan Karlowsky (Leibniz IGZ) - biomass grown in wastewater – Reindert Devlamynck (Inagro Belgium) - iron phosphate recovery (ViviMag) – Jean-Christophe Ades and Outi Grönfors (Kemira) - viewpoint from Canada – Céline Vaneeckhaute (Université Laval, Canada) - ideas from Italy – Roberto Canziani (PHOSTER, Politecnico di Milano) - nutrient recycling via biochars – Pål Jahre Nilsen (Vow/Scanship and European Biochar Industry Consortium Board Member) - integration with biogas production, recycling in digestates - cement industry valorising sludge energy and recovering phosphorus – Laure Blezat (Geocycle/Holcim) & Michele Graffigna (Heidelberg Materials)" *Questions and discussion*
13h00 – 14h00	Lunch break
14h00 – 15h00	**Discussion of different questions to address in defining "reuse and recycling rates" for P and N:** - What should be the questions ? How to frame the questions ?
15h00 – 15h30: Coffee break	- **What are feasible "rates" for P and for N recovery? How should these be defined?** … as % of wwtp inflow? … as % in sludge? … as % in ash? … as recovery of P or N down to a certain residual level (per p.e.)? … Other …? Should rates be specified for each wwtp, or for regions/catchments ? - **Should the "rates" be different for wwtps of different size or configuration?** Or depending on regional context: ?
15h30 – 16h30	- **Definition of "reuse and recycling" ?** … Should this include treated sludge use in agriculture (biosolids to land). If so, under what conditions, e.g. quality / contaminants? plant nutrient availability? spreading according to crop nutrient requirements? - **Should quality/functional requirements should be specified for recovered nutrient products?** Respect of fertiliser regulation criteria ? Certification ? Plant availability ? Other functionalities (industrial uses) ?
16h30	Close, coffee

A photo taken during the Event is presented in Figure 71.

Figure 71. Picture from the Conference on 13-14/03/2024 in Belgium

4.5.1. SUMMARY OF THE DISCUSSION

During the presentation, EBA focused on highlighting three specific examples of policy tools:

- Enhancing support for the implementation of Good Agricultural and Environmental Conditions (GAEC) related to nutrient recycling or including additional eco-schemes in CAP strategic plans.
- Proposing the establishment of a mandatory Nutrient Recycling Target at the European level.
- Facilitating streamlined activities associated with nutrient recycling within the EU Taxonomy.

Apart from the aforementioned proposals which gained support from other speakers, additional policy tools have been put forward:

- Allow the utilisation of RENURE fertilisers between the 170kg nitrogen per ha per year limit of the Nitrates Directive and crop requirement.
- Enhance the quality of sludge, establish monitoring mechanisms, and provide liability insurance for farmers.
- Safeguard the CAP budget from cuts and boost support for circular fertilisers.

- Regulate further problematic industrial chemicals which contaminate sludge and hinder its recyclability.
- Offer incentives to wastewater operators to create materials in demand by the fertilisers industry.
- Enforce stricter Cadmium limits on mineral fertilisers.
- Simplify the EU Fertilising Products Regulation and facilitate the integration of additional recycled materials, especially organic industrial by-products and sewage-derived substances.
- Introduce a reduced VAT on recycled nutrients and introduce eco-taxes on primary nutrients found in fertilisers and chemicals.

The day concluded with an extensive panel discussion involving the entire audience, the outcomes of which were summarised in the SCOPE newsletter #221 (presented in Figure 72 below):

Figure 72. Scope newsletter

European Sustainable Phosphorus Platform

SCOPE NEWSLETTER

ESPP outline for proposals

on market "pull" policies for uptake of recycled nutrients

Following this workshop, discussions and input, ESPP's General Assembly has derived the following proposals.
Comments are welcome to ESPP.

ESPP will now invite other organisations and stakeholders to support these proposals and to jointly submit these to the new European Commission in Autumn 2024.

- **Policies should incentivise nutrient recovery only where the recovered nutrient product is of quality and corresponds to user needs and specifications.**
- Integrate into the **next CAP revision** (revision starting probably 2025)
  - support for fertiliser use optimisation, use of recycled nutrients and organic fertilisers in CAP Strategic Plans,
  - add a GAEC for the use of recycled nutrients,
  - propose that national CAP FaST tools should monitor the use of recycled nutrients,
  - include advice on use of recycled nutrients in the CAP FAS requirements (Farm Advisory Services),
  - support farmer investments in nutrient recycling and in digestate processing.
- **Condition farm carbon credits** (for spreading of organic materials) to nutrient balance and to application of nutrients according to crop needs and in a form available to crops.
- Propose inclusion of nutrients into future **agriculture ETS.**
- Extend the existing **CBAM** on fertilisers to cover phosphorus, including with a P-BAM on both P in imported fertilisers, animal feed and food products, and with a parallel mechanism to also ensure a level playing field for exports by EU fertiliser producers and farmers.
- Consider **including definitions of "recycled nutrient" and "bio-based nutrient" into the** FPR (EU Fertilising Products Regulation)**,** under labelling criteria (Annex III).
- Call for an EU **study of possible impacts of a progressive quota on recycled nutrients**, covering all EU fertiliser sales (including of organic fertilisers), and of an accompanying recycled nutrient credit trading scheme. This study should assess possible benefits for nutrient recycling and possible negative impacts.
- Exempt certain recycled-N products derived from manure under the **EU Nitrates Directive** (exempt these from N spreading limits for processed manure) subject to: must not facilitate livestock production concentration, must be readily verifiable by authorities, must not allow untreated or scarcely processed manures.
  NOTE: see the Commission proposal of May 2024.
- Work with the Certified **Organic Farming** movement (IFOAM Europe) to admit further recycled nutrient products as inputs to Organic Farming.
- Extend the current **EU 'Taxonomy' (*)** to cover:
  - P-recovery from other secondary nutrient streams
  - N-recovery
  - processing of digestate and use as fertiliser

  ** Taxonomy P-recovery and anaerobic digestate sections, next cutoff end 2024.*
- Include the above in **Green Public Purchasing.**
- Engage a European Commission study into possible extension, beyond the revised Urban Waste Water Treatment Directive, of **phosphorus reuse and recycling targets to other secondary nutrient streams:** organic fraction of municipal solid waste, food processing, abattoirs, intensive livestock manure …
- Include in revision of the **EU Sewage Sludge Directive:** tighter contaminant limits, obligatory quality assurance schemes and best sludge management practices including for nutrient valorisation
- **Evaluate the potential for nitrogen recovery** in wastewater treatment, sewage sludge handling, from sewage sludge and other combustion / incineration processes (from NO_x offgas stripping).
- Launch a European Commission policy analysis **to develop an INMAP (Integrated Nutrient Management Action Plan)** and to enact the Farm-to-Fork and COP 15 - Biodiversity Strategy nutrient loss reduction targets.
- Continue actions to **address regulatory obstacles to nutrient recycling,** including:
  - admit further recycled nutrient materials into the EU Fertilising Products Regulation (FPR, CMCs), simplify and accelerate the process for such modifications to the FPR,
  - simplify and reduce costs of FPR certification,
  - authorise use of Cat.1 Animal By-Product ash in EU fertilising products (subject to EFSA opinion on safety),
  - facilitate and accelerate modification of site operating permits to allow fertiliser production sites and other industries to take in waste as input for nutrient recycling,
  - address obstacles to recycling of nutrients in animal feed regulations, whilst ensuring food-chain safety,
  - address End-of-Waste questions and incoherencies between different Member States.
- Develop a public, **online communications tool** to promote nutrient stewardship and recycling (with sign-up-to-support).

European Sustainable Phosphorus Platform **SCOPE Newsletter**
www.phosphorusplatform.eu

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4.5.2. RELEVANT OUTCOMES FOR THE PROJECT

Regulatory mechanisms play a vital role in encouraging the adoption of circular fertilisers in agriculture. At the European level, implementing several regulatory drivers has been repeatedly highlighted as essential, including implementing a nutrients recycling target, setting a level playing field between RENURE and synthetic fertilisers and rewarding further circular fertilisers users under the Common Agricultural Policy.

4.6. Event with public administration from EU (21/03/2024)

Table 39. Event Main Features (Conference on 21/03/2024)

Responsible partner:	EBA
Target public:	Public administration and policy officers
Type of event:	Presentation inside a Conference ManuREsource
Modality:	In person
Joint event with EU project /FER-PLAY dedicated event:	Joint session with NOVAFERT project
Main scope:	Collecting feedback on challenges and opportunities for circular fertilisers
Location (Country acronym)	BE
Date (dd/mm/yyyy):	21/03/2024
Duration (hours):	1 hour
Impact:	22 participants (4 from Public Administration and policy officers; 5 representatives of fertiliser producers)

On 21/03/2024, a parallel session was held in collaboration with the EU project NOVAFERT (FER-PLAY sister project) as part of the ManuResource Conference (20-21/03/2024, Antwerp, Belgium). The session focused on addressing regulatory obstacles and incentives for circular fertilisers derived from manure.

The agenda of the Conference during the 2 days is shown in Figure 73Figure 74 and Figure 74 . The part related to the parallel session of FER-PLAY and NOVAFERT projects is highlighted dark green on the agenda of 21/03/2024.

Figure 73. Agenda of the ManuResource Conference on 20/03/2024 in Belgium

Programme ManuREsource 2024

Below, the preliminary programme from 20-21 March 2024 is given. This programme is still subject to change.

Please check the programme regularly to get an update on the programme and speakers?

Meet the speakers

Wednesday 20 March 2024

Time	Session	Location
8:00 - 9:00	**Registration and welcome coffee**	Conference room
9:00 - 9:30	**Official opening** of ManuREsource 2024 and welcome speeches • Jan Roefs, Managing director at Dutch Centre of Expertise for Manure Valorization (NCM) (NL) • Bart Naeyaert, President VCM/Deputy Agriculture West-Flanders (BE) • Kathleen Helsen, Deputy of the Province Antwerp (BE)	Auditorium
9:30 - 10:00	**Presentation by stakeholder organisations** • Caroline Van der Heyden, Advisor Manure and Air Policy at Boerenbond (BE) • Joris Baecke, portfolio holder Soil & Water at LTO (NL)	Auditorium
10:00 - 10:20	**Manure, livestock and emissions in the Netherlands: accelerating the way forward by a public-private partnership** • Ruud Tijssens, Director Public & Cooperative Affairs Agrifirm Group and ex-president of the Taskforce 'Acceleration of the innovation proces of stable systems' (NL) • Henk Reinen, Director of the Dutch taskforce for accelerating innovation for reduction of emissions from livestock husbandry (NL)	Auditorium
10:20-10:40	**Presentation by policy representative: Nitrates Directive and nutrient policy** by Jeanne De Jaegher, European Commission -DG Environment Dir D- Biodiversity	Auditorium
10:40 - 11:10	**Coffee break and poster session**	Conference room
11:10 - 11:30	**Recycling nutrients and regenerating soil with digestate** by Lucile Sever, Policy Officer at the European Biogas Association	Auditorium
11:30 - 11:35	**Presentation or short film given by Moving Floor Concept (Diamond sponsor)**	Auditorium
11:35 - 13:00	**Panel discussion: Manure valorisation, key for a future-proof rural area and for a circular food system.** • Jeanne De Jaegher (DG ENVI) • Caroline Van der Heyden (Boerenbond) • Joris Baecke (LTO) • Lucile Sever (EBA) • Laia Llenas Argelaguet (UVIC) • Henk Reinen (Regieorgaan) • Ruud Tijssens (Agrifirm Group) Moderator: Victor Dries (Flemish Minstery of Justice and Enforcement, Environment, Energy and Tourism, BE)	Auditorium
13:00 - 14:00	**Lunch and poster session**	Conference Room
14:00 - 14:45	**Flash presentations by our sponsors:** • Farmcubes (Gold) • CerTrust (Silver) • Colson (Silver) • Nature Energy (Supporter) • Movanta (Supporter)	Auditorium
14:45 - 16:00	**Parallel Sessions**, including: • Lex4Bio • LemnaPro • Eurofema • Abstracts Manure and Sustainability The full program of the parallel sessions can be found here.	Different rooms
16:00 - 16:15	**Coffee break and poster session**	Conference room
16:15 - 17:30	**Parallel Sessions**, including: • Lex4Bio • CiNURGi • Nutribudget • Abstracts Innovations in manure and digestate treatment The full program of the parallel sessions can be found here.	Different rooms
18:30 - 19:30	**Guided Tour in Antwerp**	Starting point at: Groenplaats, statue Pieter Paul Rubens

Figure 74. Agenda of the ManuResource Conference on 21/03/2024 in Belgium

Thursday 21 March 2024

Time	Session	Location
8:00 - 9:00	**Opening with welcome coffee**	Conference room
9:00 - 9:20	**Research and innovation in nutrient recovery technologies for manure valorisation - Current status and remaining challenge**s by Laia Llenas Argelaguet (UVIC)	Auditorium
9:20 - 10:20	**Presentation by the Ivan Tolpe Award 2023 Nominees: overview of innovative technologies** • Nutrient and energy recovery at farm scale by Jeroen Dolfen (Green Service, BE) • Full-scale implementation of a peroxide-based slurry additive for reduced greenhouse emissions and improved downstream biogas yield by Stephen Nolan (GlasPort Bio, IE) • Mono manure digestion & nitrogen stripping as a circular farm-model by Peter Fopma (Biolectric, BE) • Solar drying of manure and digestate by Belen Fernandez (IRTA, ES)	Auditorium
10:20 - 10:40	**Digestate valorisation in frame of the Biomethane Industrial Partnership (BIP)** by Laure Baillargeon, DG GROW	Auditorium
10:40 - 11:10	**Coffee break and poster session**	Conference room
11:10 - 13:10	**Round table discussions on the transition towards a circular economy and manure as a sustainable resource.** The overview of the round tabel discussions can be found here.	Different rooms
13:10 - 14:30	**Lunch and poster session**	Conference room
14:30 - 15:45	**Parallel sessions**, including • Fertimanure • BSMO • Novafert and FER-PLAY • Abstracts Innovations in manure and digestate treatment The full program of the parallel sessions can be found here.	Different rooms
15:45 - 16:00	**Coffee break and poster session**	Conference room
16:00 - 17:15	**Parallel sessions**, including • Renu2Cycle • BioDEN • Abstracts Manure as a resource • Abstracts Manure and Sustainability The full program of the parallel sessions can be found here.	Different rooms
17:15 - 17:30	**Coffee break and poster session**	Conference room
17:30 - 18:00	**Plenary conclusions in the presence of the press** • ManuREsource 2024 Poster Award • Concluding remarks of the debate and round table discussions	Auditorium
18:00 – 19:00	**Closing drink**	Conference room

The agenda of the parallel sessions is presented in the following Figure 75.

Figure 75. Agenda of the parallel sessions on 21/03/2024 in Belgium

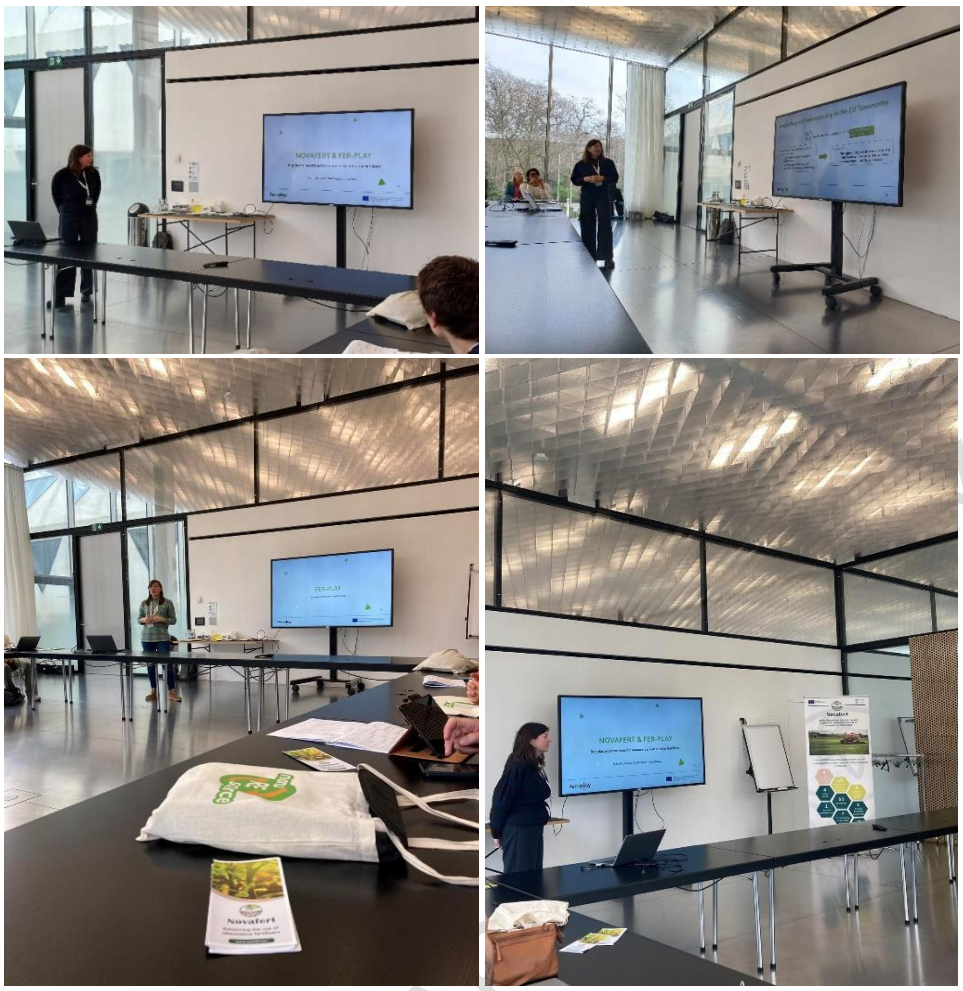
14:30 – 15:45

Parallel sessions 21 March 2024 (Part I)

FERTIMANURE **FERTI-Manure Management Package – Tools for a most efficient management of animal manure**	**BSMO** **From innovative stables to better manure and improved crop yields**	**NovaFert and FER-PLAY** **Regulatory barriers and incentives for manure-based circular fertilisers**	**Abstracts** **Innovations in manure and digestate treatment**
Auditorium	Nicole Van Goethem zaal	Sam Dillemans zaal	Eugeene van Mieghemzaal
FERTIMANURE TMF Nutrition Tool – *Calculates the optimal combination of manure, BBFs and mineral fertilisers to meet the nutrient requirements of a specific crop-soil combination taking into account the soil fertility status, regulatory limitations and/or price of fertilizing products* Schoumans, O., WUR (NL)	**BSMO project overview: From innovative stables to better manure and improved crop yields** de Jong, D., WUR (NL)	**Nitrates Directive** Meers, E., UGent (BE)	**Dynamic ammonium retention for nutrient separation from manure digestate** van der Wal M., Eindhoven University of Technology (NL)
FERTIMANURE Decision Support System – *Supports users in making well-informed decisions regarding which FERTIMANURE pilot they could use to produce a specific BBF considering their farm manure production and the pilot's treatment capacity, life cycle environment performance and economic performance (CAPEX and OPEX)* Egas, D., BETA Tech Center (ES)	**Manure products from innovative stables** Verdoes, N., WUR (NL)	**Various regulatory incentives for manure-based circular fertilisers** Sever, L., EBA (BE)	**Enhancing Biogas Production and Mitigating Ammonia and Methane Emissions through Biological Acidification of Cattle Manure** Meiresonne J., HAS University of Applied Sciences (NL)
FERTIMANURE Logistics Tool – *Calculates the economically optimal logistics and manure management strategies taking into consideration the regional nutrient requirements and limitations of a specific crop-soil combination and regional manure production* Vingerhoets, R., UGent (BE)	**The use of slurry versus separated manure products in crop production** van Dijk, W., WUR (NL)	**Summary Market Pull" event of 13/03/2024 in Brussels organized by ESPP** Hermann, L., Proman	**Duckweed for pig manure treatment and feed production** Lambert M., UGent, Inagro (BE)
FERTIMANURE Regulatory Tool – *Evaluates the alignment of the produced BBFs with the EU Fertilising Products Regulation* Thevenin, N., RITTMO (FR)	**Emissions and costs/benefits analysis from manure chains with 'new' manure products**		**Effect of periodic H2 injection on biogas production from cattle slurry** Laaksonen I., Natural Resources Institute Finland (FI)

Some photos taken during the Event are presented in Figure 76.

Figure 76. Pictures from the Parallel session during the Conference on 21/03/2024 in Belgium



4.6.1. SUMMARY OF THE DISCUSSION

The University of Ghent (Nimisha Edayilam, Postdoctoral Researcher & Scientific Network Coordinator) opened the session by presenting the NOVAFERT project. This initiative aims to showcase the feasibility of utilising various circular fertilising products from diverse waste sources, emphasising their technical, economic, and environmental viability to promote their adoption and raise awareness of their advantages.

Subsequently, INAGRO (Inès Verleden, Researcher) introduced the FER-PLAY project to the audience, also outlining the policy responsibilities associated with the project.

The University of Ghent (Erik Meers, Research Professor) addressed the resolution of several policy barriers related to circular fertilisers within the context of evaluating the Nitrates Directive. He highlighted three specific issues:

- The restriction of 170 kg of nitrogen per hectare per year in Nitrates Vulnerable zones poses a challenge for circular fertilisers derived from manure when compared to synthetic fertilisers. He proposed that allowing the use of RENURE fertilisers could alleviate this barrier.
- There is inconsistency and uncertainty in the definition of manure across the Fertilising Products Regulation, the Nitrates Directive, and the Animal By-products Regulation, creating legal ambiguity.
- Ammonium salts obtained from off-gases are classified as processed manure under the Nitrates Directive, despite the fact that they should not be considered as such.

EBA (Lucile Sever, Policy Officer for Circular Economy) then proceeded to present three examples of policy incentives:

- Implement a European Nutrients Recycling Target, in the form of a mandatory blending target, i.e. a minimum % of recycled nutrients used in fertilisers sold.
- Increase support to farmers using circular fertilisers (via GAEC or eco-schemes under the Common Agricultural Policy).
- Streamline activities involving nutrient recycling within the EU Taxonomy by proposing one single activity “Nitrogen and phosphorus recycling from wastewaters, manure or other organic waste and by-products".

Following the presentation, participants engaged in a discussion, offering the following feedback:

- The European Nutrients Recycling Target was a topic of intense discussion. Some stakeholders pointed out that this target was only an incentive to blend recycled nutrients within synthetic fertilisers, which would not benefit local producers who create their own unprocessed fertilisers, such as compost or digestate producers. Several stakeholders expressed concerns about potential price increases on fertilisers, which could exacerbate the current agricultural crisis. If the burden was placed on fertiliser producers, some stakeholders would find it more acceptable; however, cooperation throughout the entire food value chain is essential. Additionally, stakeholders raised concerns about the difficulty in distinguishing between circular and synthetic nutrients, which could lead to issues in enforcing the target.
- One stakeholder reminded the audience of the initiative by the European Commission of implementing an Integrated Nutrients Management Plan. Unfortunately, this initiative was abandoned whereas it could have led to further policy incentives to close the nutrient cycle and avoid nutrient losses. Several stakeholders indicated that setting this type of initiative, with a holistic perspective, could be very valuable for the uptake of circular fertilisers.

4.6.2. RELEVANT OUTCOMES FOR THE PROJECT

On a national level, a key issue is the absence of end-of-waste criteria, resulting in valuable circular fertilisers still being classified as waste. This misclassification undermines the financial value of these products, as they are not perceived as valuable or are priced low compared to synthetic fertilisers. Additionally, more refined fertilisers, such as struvite or certain digestates, struggle to compete with the prices of synthetic alternatives.

4.7. Event with public administration from EU (04/09/2024)

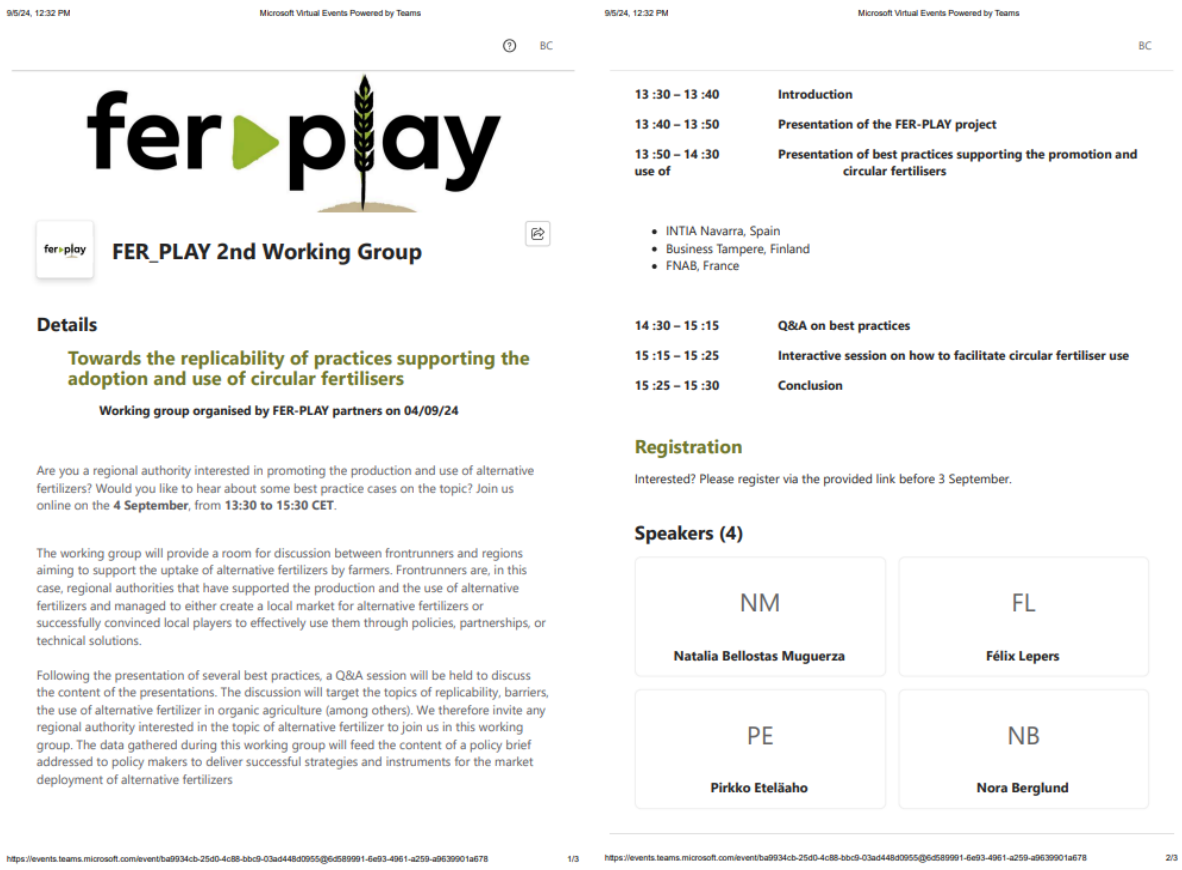
Table 40. Event Main Features (Working group on 04/09/2024)

Responsible partner:	ACR+
Target public:	Public administration (event opened to all interested actors)
Type of event:	Working group
Modality:	Online
Joint event with EU project /FER-PLAY dedicated event:	TREASoURcE and Stratus projects were invited to share their best practices
Main scope:	To discuss best practices on the promotion of production/use of circular fertiliser + to gather information for the development of the policy briefs
Location (Country acronym)	Online
Date (dd/mm/yyyy):	04/09/2024
Duration (hours):	2 hours
Impact:	30 participants (13 from Public Administration/policy makers)

On 04/09/2024 ACR+ organised an online working group with the representatives of Public Administration and policy makers. The main goal of the Event was to discuss the best practices on the promotion of production and use of circular fertilisers as well as to gather some useful information for the development of the policy briefs.

The agenda of the Event is presented in Figure 77.

Figure 77. Agenda of the online Working group on 04/09/2024



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BC

fer▸play

FER_PLAY 2nd Working Group

Details

Towards the replicability of practices supporting the adoption and use of circular fertilisers

Working group organised by FER-PLAY partners on 04/09/24

Are you a regional authority interested in promoting the production and use of alternative fertilizers? Would you like to hear about some best practice cases on the topic? Join us online on the **4 September**, from **13:30 to 15:30 CET**.

The working group will provide a room for discussion between frontrunners and regions aiming to support the uptake of alternative fertilizers by farmers. Frontrunners are, in this case, regional authorities that have supported the production and the use of alternative fertilizers and managed to either create a local market for alternative fertilizers or successfully convinced local players to effectively use them through policies, partnerships, or technical solutions.

Following the presentation of several best practices, a Q&A session will be held to discuss the content of the presentations. The discussion will target the topics of replicability, barriers, the use of alternative fertilizer in organic agriculture (among others). We therefore invite any regional authority interested in the topic of alternative fertilizer to join us in this working group. The data gathered during this working group will feed the content of a policy brief addressed to policy makers to deliver successful strategies and instruments for the market deployment of alternative fertilizers

https://events.teams.microsoft.com/event/ba9934cb-25d0-4c88-bbc9-03ad448d0955@6d589991-6e93-4961-a259-a9639901a678 1/3

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13 :30 – 13 :40	**Introduction**
13 :40 – 13 :50	**Presentation of the FER-PLAY project**
13 :50 – 14 :30	**Presentation of best practices supporting the promotion and use of circular fertilisers**

- INTIA Navarra, Spain
- Business Tampere, Finland
- FNAB, France

14 :30 – 15 :15	**Q&A on best practices**
15 :15 – 15 :25	**Interactive session on how to facilitate circular fertiliser use**
15 :25 – 15 :30	**Conclusion**

Registration

Interested? Please register via the provided link before 3 September.

Speakers (4)

NM	FL
Natalia Bellostas Muguerza	**Félix Lepers**
PE	NB
Pirkko Eteläaho	**Nora Berglund**

https://events.teams.microsoft.com/event/ba9934cb-25d0-4c88-bbc9-03ad448d0955@6d589991-6e93-4961-a259-a9639901a678 2/3

The following Figure 78 shows some of the screenshots taken during the online Working group.

Figure 78. Screenshots taken during the online Working group on 04/09/2024

4.7.1. SUMMARY OF THE DISCUSSION

The discussion began with the presentation of the project FER-PLAY and a general introduction to circular fertilisers. The key advantages of circular fertilisers were highlighted, including their potential to preserve soil from degradation, reduce pollutant leakage and decrease dependence on imports. A brief overview of regulatory scenarios was also provided, showing the varying levels of regulation from under- to over-regulated bioproducts.

Best Practices Presented from EU Regions

1. Natalia Bellostas from INTIA (Public Technical centre for the agro-industry and farming sector) – Knowledge Transfer to Farmers

INTIA, an organisation under the agricultural department of Navarra, Spain, shared its experience in transferring knowledge to farmers through experimental farms and over 25 R&D projects. Their efforts cover the entire agri-food value chain; addressing issues such as generational renewal, certification of protected denominations of origin (PDO), short value chains and innovation.

Their strategic agenda aligns with the EU's "Farm to Fork" strategy, focusing on innovation through on-site farm demonstrations and training kits to ensure structured knowledge transfer.

The organisation is involved in the "Stratus" project, which aims to establish an EU-wide advisory network for sustainable fertilisation.

Key Challenges discussed were:

- Strengthening public investment in support structures.
- Balancing public and private research directions.
- Addressing resistance to change among farmers due to the strong influence of fossil-fertiliser distributors.
- Raising awareness of potential product bans and adapting to the next generation of farmers.

Q&A Highlights:

- INTIA collaborates with farmers in real-world trials, using their feedback to fine-tune training.
- Farmers often bring requests to the public organisation, which is committed to ensuring impartiality in its advisory services.
- Discussions touched on the difficulty of attracting younger generations to farming, suggesting new business models that offer part-time entry into the sector and more value from production.

2. Nora Berglund – Treasource Digital Marketplace

The "Treasource" project (2022–2026) is focused on building a digital marketplace that connects the biobased waste stream value chains in Northern Europe.

The marketplace benefits both customers (biotech firms, processing industries) and sellers (farms, biotech firms, municipalities), offering economic diversification and access to new customers. The project has also published policy recommendations to support this commercialisation.

Q&A Highlights:

- Although the platform is launched, logistics are still organised independently by buyers and sellers, and efforts are underway to improve the logistical framework.
- Farmers' reluctance to share waste data with government platforms was noted, and the project addressed this through stakeholder engagement and matchmaking events.
- Business models are still being developed, with potential future revenue streams including advertisements or transaction fees.

3. Felix Lepers from FNAB (French Federation of Organic Farming) – MONA Project

The MONA project, led by FNAB, supports organic farmers by facilitating collaboration with local authorities to develop composting projects. This initiative responds to the declining availability of manure, which has decreased due to a 20% drop in livestock over the past decade.

The project connects farmers with local authorities to explore the potential of composting household biowaste, with a focus on smaller farms involved in market gardening, orchards, and vineyards.

Key Findings discussed were:

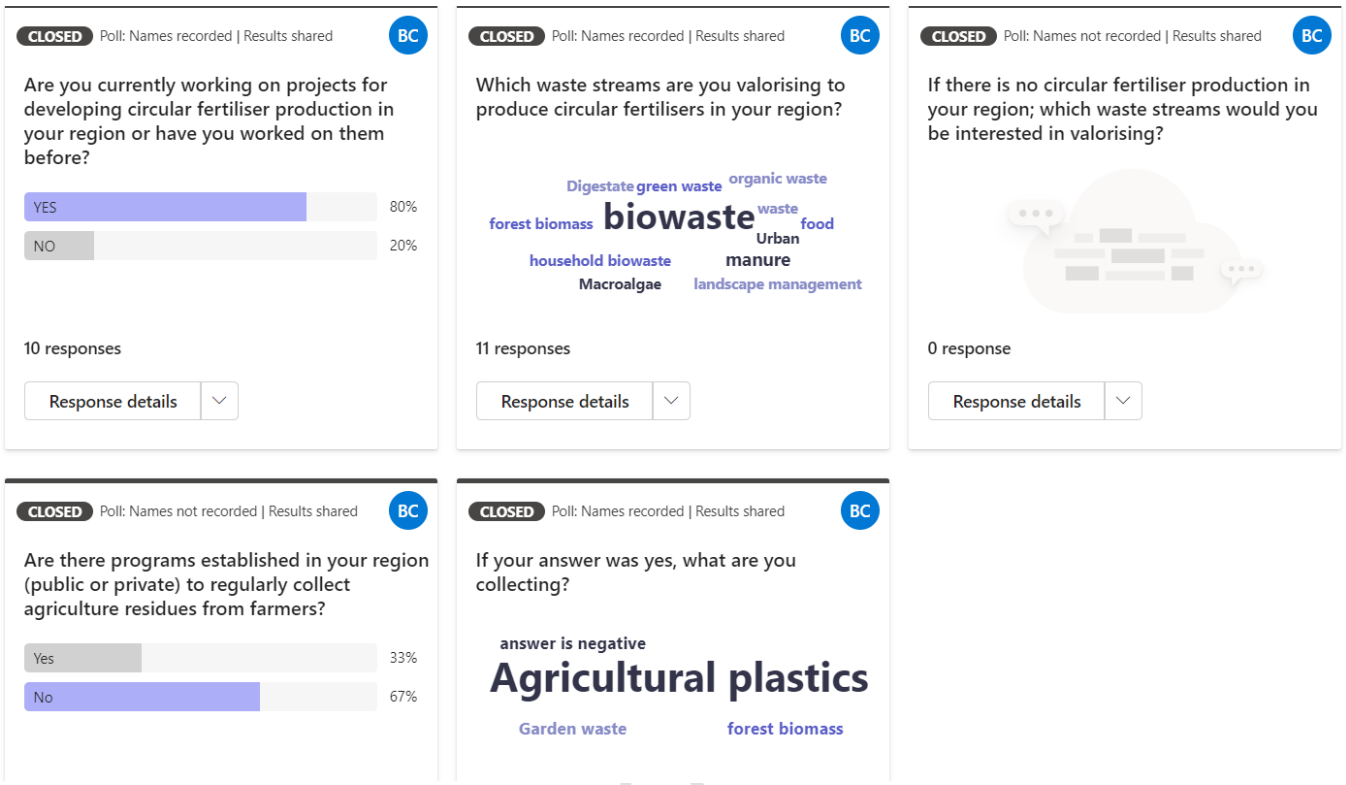
- Farmers are willing to adopt composting, and plastic contamination is not yet a significant concern.
- On-farm composting is more suited to smaller crops, while industrial composting works better for field crops.
- Major challenges include the regulatory barriers posed by Animal By-Products Regulations (ABPR), which make composting bio-waste a complicated process.

Q&A Highlights:

- Compost quality is assured through collaboration with technical institutes, and farmers are encouraged to evaluate compost quality based on their own experience.
- Although farmers are willing to pay for compost, local authorities sometimes offer it for free. FNAB recommends against this, advocating for paid compost to maintain its perceived value.
- Regulatory hurdles for composting household biowaste in France were discussed, with FNAB working to streamline the approval process with national authorities.

The following Figure 79 represents the questions done during the interactive session and the received answers.

Figure 79. Interactive session during the online Working group on 04/09/2024



4.7.2. RELEVANT OUTCOMES FOR THE PROJECT

The Best Practices presented demonstrated that the Public Administration can have an important role in the deployment of production and use of circular fertilisers by the EU local territories.

4.8. Event with public administration from EU (19/09/2024)

Table 41. Event Main Features (Workshop on 19/09/2024)

Responsible partner:	EBA
Target public:	Policy experts
Type of event:	Workshop
Modality:	In person
Joint event with EU project /FER-PLAY dedicated event:	FER-PLAY dedicated event at ESNI Conference 2024
Main scope:	Driving circular fertilisers adoption in Europe: FER-PLAY policy insights

Location (Country acronym)	Brussels (BE)
Date (dd/mm/yyyy):	19/09/2024
Duration (hours):	1 hour
Impact:	29 participants from which 19 related to policy issues. In particular: 2 from agriculture sector (1 policy officer); 3 from fertiliser producers (2 policy officers); 1 from the target group Public administration; 23 from other groups (4 policy officers/advisors and 11 dealing with related policy topics)

As part of the Conference of the European Sustainable Nutrient Initiative (ESNI), which took place on the 18th and 19th of September in Brussels, EBA organised the FER-PLAY Workshop as a focal event contributing to advance the state of knowledge and technology in nutrient recycling. The event aimed to present and discuss the main findings of the comprehensive regulatory analysis, which examines legal conditions for the adoption of circular fertilisers at international, European, and national levels.

The agenda of the Event is shown on the following Figure 80.

Figure 80. Agenda of the Workshop on 19/09/2024

Driving circular fertilisers adoption in Europe: FER-PLAY policy insights

ESNI Conference

19th September 2024, 14:55 to 15:55 CET

Ateliers des Tanneurs, rue des Tanneurs 58-62, 1000 Brussels (Belgium)

As part of the Conference of the European Sustainable Nutrient Initiative (ESNI), which will take place on the 18th and 19th of September in Brussels, the FER-PLAY Workshop will be a focal event contributing to advance the state of knowledge and technology in nutrient recycling.

This workshop aims to present and discuss the findings of our comprehensive regulatory analysis, which examines legal conditions for the adoption of circular fertilisers at international, European, and national levels. Based on several co-creation sessions with various stakeholders, our analysis focuses on seven types of circular fertilisers: struvite from urban wastewater, struvite from industrial wastewater, stabilised sludge, composted bio-waste from food and green waste, feather meal, the solid fraction of digestate and spent mushroom substrate.

Time	Activity
14:55 - 15:00	**Introducing the FER-PLAY project** – Inès Verleden, Researcher Energy and Circular Economy at INAGRO
15:00 - 15:10	**Results of the Life Cycle Analysis for 7 circular fertilisers value chains** – Christina Papadaskalopoulou, Head of Circular Economy and Climate Resilience at DRAXIS
15:10 - 15:15	**Regulatory framework for struvite utilisation** (by video) – Wim Moerman, Dr. Ir. Process Engineer at NURESYS
15:15 - 15:35	**Regulatory framework analysis: key results for 7 circular fertilisers value chains** – Lucile Sever, Policy Officer for Circular Economy at EBA
15:35 - 15:55	**Co-creation session with the participants**

At the European level, we have identified significant barriers within the Waste Framework Directive, the Nitrates Directive, the Sewage Sludge Directive, the Fertilising Products Regulation, the Organic Farming Regulation, the Common Agricultural Policy, the Urban Waste Water Treatment Directive and the Taxonomy Regulation. Additionally, at the national level, the lack of harmonisation or the unnecessary alignment of national legislation with European legislations may create further obstacles. As European institutions begin their new mandate for 2024-2029, FER-PLAY has also identified several new regulatory drivers that could be introduced to enhance the adoption of circular fertilisers.

We look forward to your active participation in driving the adoption of circular fertilisers in Europe.

fer▸play

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

Ahead of the Conference, EBA invited a total of 47 policy experts – policy makers and policy officers (see provided list). However, only a few attended the workshop despite several follow-up efforts.

Some photos taken during the Event are presented on Figure 81.Figure 81

Figure 81. Photos taken during the Workshop on 19/09/2024

4.8.1. SUMMARY OF THE DISCUSSION

Just before the FER-PLAY workshop, EBA Policy Officer Lucile Sever delivered a four-minute pitch to the entire ESNI Conference audience to encourage participation in the FER-PLAY session (see the following Figure 82).

Figure 82. Photos of the pitch to entire conference audience to encourage participation in the FER-PLAY session

The policy session opened with EBA (Lucile Sever, Policy Officer) giving a brief overview of the session's focus.

Following this, INAGRO (Inès Verleden, researcher) introduced the FER-PLAY project, highlighting the challenges, opportunities, and methodology used, along with the policy responsibilities associated with the project.

Next, DRAXIS (Christina Papadaskalopoulou, Head of Circular Economy and Climate Resilience) presented the findings from the Life Cycle Analysis (LCA) conducted on seven different types of circular fertiliser value chains. She elaborated on:

- The system boundaries and functional units of each circular fertiliser.
- The performance of each circular fertiliser across three different impact dimensions (social, environmental and economic) and its comparison with conventional fertilisers.
- It was noted that while circular fertilisers generally show better environmental performance across various categories, their social and economic impacts can either underperform or show improvements depending on the specific case.

During the Q&A session, several questions were raised:

- Some participants inquired about the methodology used to calculate social impacts, particularly with regard to public sector corruption.

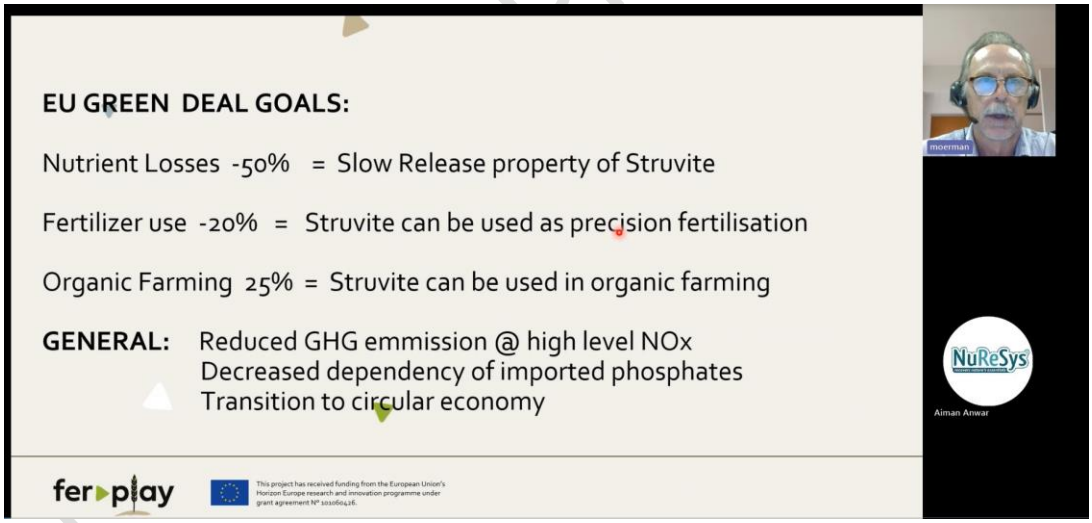
- A question was raised about whether carbon sequestration was included in the project. DRAXIS explained that since the impact of circular fertilisers on carbon sequestration is generally short-term and the relevant practices are not yet fully developed, it was not included.
- Another participant asked why micro-pollution spreading was not considered in the project. DRAXIS clarified that reliable data on micro-pollution spreading is difficult to obtain from the literature for all circular fertilisers. Since this data was lacking, and practical experimentation fell outside the project's scope, it was not included.

NuReSys (Wim Moerman by online presentation) addressed the regulatory framework surrounding struvite via a pre-recorded video:

- Summarised the Green Deal goals, highlighting how struvite can contribute to achieving its objectives, such as reducing nutrient losses by 50% and fertiliser use by 20%.
- Outlined the impact of The Fertilising Products Regulation (EU) 2019/1009 on struvite quality, noting that producers must meet specific requirements outlined in various annexes. Even when these standards are met, third-party certification is still required. Additionally, struvite is permitted for use in organic farming, but FPR certification is mandatory.

The screenshot taken during the presentation done by NuReSys is shown on Figure 83.

Figure 83. Screenshot taken during NuReSys presentation during the Worskop on 19/09/2024



Lastly, EBA (Lucile Sever) presented the results of the regulatory framework analysis for seven circular fertiliser value chains.

The three objectives of the policy analysis were as follows:

1. Identify current regulatory obstacles hindering the adoption of circular fertilisers by end-users as well as regulatory drivers promoting their use.
2. Propose policy recommendations to overcome those regulatory obstacles.
3. Propose new regulatory drivers that can further stimulate the market of circular fertilisers.

The analysis covered the adopted legislation and legislation currently in the process of being adopted, which was identified at three levels of governance (International, European and National).

Out of the 11 EU legislations analysed in the policy analysis, the presentation focused on four legislations: the Sewage Sludge Directive, Fertilising Products Regulation, Organic Farming Regulation and the Common Agricultural Policy.

Main barriers were identified for each of these legislations:

- The Sewage Sludge Directive is outdated and requires updating, as some pollutants concentration limits are not stringent enough or some pollutants are not covered in the Directive.
- The Fertilising Products Regulation only encompasses four of the selected circular fertilisers; other issues a lack of coherence between the FPR and the Animal By-products Regulation standards and an incomplete implementation of the FPR.
- The Organic Farming Regulation prohibits circular fertilisers containing animal by-products from “factory farming origin” in organic farming. However, the term “factory farming” lacks an EU-wide definition, leading to varied interpretations across Member States.
- The Common Agricultural Policy (CAP) lacks mandatory measures, under SMRs or GAECs, requiring farmers to produce or use circular fertilisers in the CAP 2023-2027. Member States are not very ambitious to introduce additional voluntary measures under eco-schemes and rural development programs to further support the uptake of circular fertilisers.

Lastly, EBA proposed several new regulatory drivers to support the uptake of circular fertilisers:

- Revitalising the Integrated Nutrient Management Action Plan.
- Establishing a European Nutrients Recycling Target.
- Implementing fiscal tools for sustainable nutrient management.
- Considering the integration of agriculture into the Emissions Trading System.
- Enhancing Research and Innovation in sustainable nutrient management.

The Q&A session which followed the presentation of the mentioned topics, was highly engaging and active.

A participant raised several important points during the discussion:

- They noted that some farmers might use circular fertilisers in addition to synthetic fertilisers rather than replacing them, primarily due to the lower cost and a lack of understanding of the properties of circular fertilisers. This underscores the need for increased awareness among farmers; without it, there could be unnecessary use of fertiliser products, leading to runoff and pollution, which would counteract the intended benefits. However, some stakeholders disagreed, arguing that farmers typically seek to avoid unnecessary costs.

- The participant also highlighted a perceived shortage of manure for organic farming, attributing this to the lack of intensive practices. It was clarified that this is a misconception; manure does not have to come exclusively from organic farms – manure from conventional farms can also be used in organic farming, provided it meets the stricter requirements for organic circular fertilisers. Additionally, it was mentioned that farmers often form cooperatives to manage their manure through biogas plants, allowing them to collect substantial quantities. These misconceptions, combined with the poor reputation of manure, can sometimes lead organic farmers to choose conventional fertilisers instead.

The new policy drivers regarding circular fertilisers were one of the main topics of interest:

- The participants wanted to know why the integrated nutrient management action plan was abandoned, because it could have supported the sector in avoiding nutrient losses by creating further policy incentives.

- A participant pointed out that the upcoming revision of the EU bioeconomy strategy could serve as an important driver for the uptake of circular fertilisers. This observation was acknowledged as valid. It was clarified that this strategy was not included among the policy analysis drivers simply because it had not been announced at the time the analysis was written.

- Another participant inquired about the levels at which these regulatory drivers would be implemented – whether at the farmer, national, or European level. It was clarified that these drivers are primarily intended to be established at the EU level, but their implementation would also need to occur at national and likely regional levels. Ultimately, farmers would be affected by all of these drivers, with the possible exception of the Research and Innovation (R&I) driver.

- Additional drivers were suggested, but they largely overlapped with those already discussed during the presentation.

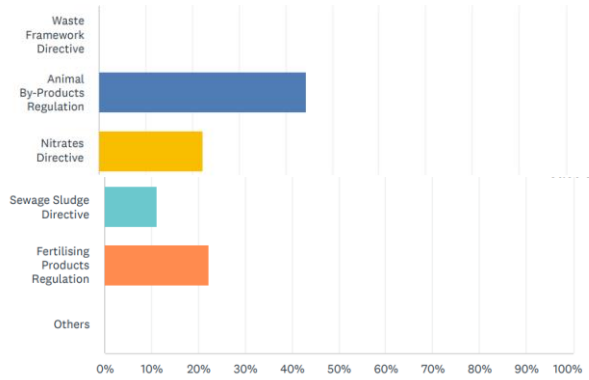
To encourage co-creation with participants, a Sli.do survey for discussion was prepared and shared as a follow-up with all attendees and all policy experts initially invited. Some of the questions launched with the related answers received are shown on Figure 84 and Figure 85.

Figure 84. Sli.do done as a follow-up with all attendees initially invited to the Workshop on 19/09/2024 (Q5 and Q6)

Q5

Which European legislation do you believe most hinders the adoption of circular fertilisers?

Beantwoord: 9 Overgeslagen: 2

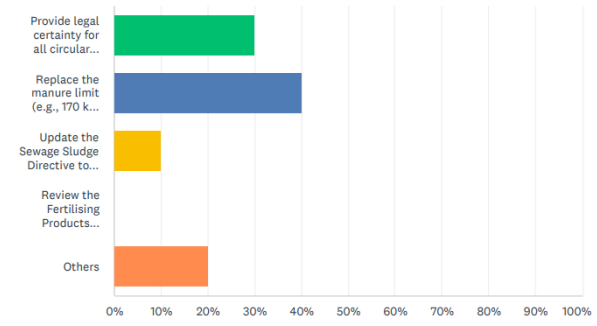


ANTWOORDKEUZEN	REACTIES	
Waste Framework Directive	0.00%	0
Animal By-Products Regulation	44.44%	4
Nitrates Directive	22.22%	2
Sewage Sludge Directive	11.11%	1
Fertilising Products Regulation	22.22%	2
Others	0.00%	0
TOTAL		9

Q6

If you could make one policy recommendation to national or EU policymakers, what would it be?

Beantwoord: 10 Overgeslagen: 1



Provide legal certainty for all circular fertilisers at national level, in parallel to the EU Fertilising Products Regulation. Once reasonable criteria are met, these products should achieve end-of-waste status to boost their value and encourage wider use.	30.00%	3
Replace the manure limit (e.g., 170 kg of N/ha/year) with a nitrogen surplus limit, regardless of the source (manure, fertilisers, nitrogen fixation, etc.) to level the playing field between synthetic fertilisers and circular fertilisers. This would also give farmers the flexibility to choose the best practices to stay within this limit.	40.00%	4
Update the Sewage Sludge Directive to impose stricter limits on heavy metals and introduce thresholds for other pollutants, boosting farmers' confidence in using products derived from sewage sludge.	10.00%	1
Review the Fertilising Products Regulation to establish achievable standards for producers and to include new materials like sewage sludge and industrial sludge.	0.00%	0
Others	20.00%	2
TOTAL		10

Figure 85. Sli.do done as a follow-up with all attendees initially invited to the Workshop on 19/09/2024 (Q7 and Q8)

Based on the 11 responses received, the following conclusions can be drawn:

- The Animal By-Products Regulation is viewed as the primary barrier to the uptake of circular fertilisers, followed closely by the Fertilising Products Regulation and the Nitrates Directive.
- Most respondents believe that replacing the manure limit (i.e. 170 kg of N/ha/year) with a nitrogen surplus limit, regardless of the source, is essential for levelling the playing field between synthetic and circular fertilisers. Additionally, some respondents emphasised the importance of providing legal certainty for all circular fertilisers at the national level, in parallel to the EU Fertilising Products Regulation.
- The Fertilising Products Regulation is widely regarded as the EU legislation with the greatest potential for advancing circular fertilisers.
- Regarding the five regulatory drivers, none stood out as particularly favoured by respondents, but all were considered relevant by some participants.

4.8.2. RELEVANT OUTCOMES FOR THE PROJECT

Numerous regulatory barriers continue to hinder the uptake of circular fertilisers, particularly in comparison to the well-established synthetic fertilisers. It is crucial to support regulatory drivers that promote and encourage the use of circular fertilisers in agriculture.

Life Cycle Assessments (LCAs) conducted on circular fertilisers have shown their superior environmental impact compared to conventional fertilisers. However, they often fall short in economic impact categories. Therefore, it is essential to stimulate the circular fertiliser market by improving regulatory mechanisms.

There is a clear need for greater policy awareness and engagement on this critical issue, which, despite its significant potential to enhance sustainable farming practices, remains somewhat niche. The lack of participation from policymakers to the workshop highlights the existing gap in understanding and commitment, underscoring the importance of increased dialogue and collaboration to elevate this topic on the policy agenda.

5. Summary and conclusions

This report includes the main outcomes obtained from the 36 co-creation events organised by project partners from March 2023 to October 2024 to collect feedback on the barriers and opportunities for the deployment of the circular fertilisers market in Europe.

The main outcomes resulting from the co-creation activities are included in Table 42 and represent valuable inputs, as they provide first-hand perspectives from external stakeholders, for the rest of activities carried out by the project, from the multi-assessment of impacts and trade-offs derived by circular fertilisers, social acceptance and regulatory barriers evaluation (WP2 "Multi-assessment of impacts, trade-offs and framework conditions of selected alternative fertiliser value chains"), to the messages displayed within the 3 tailor-made guidelines (D3.1-D3.3) and also including the awareness raising campaigns (WP4 "Dissemination, exploitation and communication").

Table 42. Summary of main outcomes obtained in the co-creation activities

Level	Main outcomes
Regulatory	Some regulations (in particular the Nitrate Directive, Sewage Sludge for Agriculture Directive, Fertilising Products Regulation, End-of-Waste criteria) are considered by end-users and producers not totally clear or to be updated, hindering the potential of circular fertilisers. There is a clear need for greater policy awareness and engagement on this critical issue, which, despite its significant potential to enhance sustainable farming practices, remains somewhat niche.
Technical	There is a lack of knowledge on the main agronomic features that circular fertilisers present (nutrient types, content and their release capacity), as well as on the local availability and distribution techniques. The end-users are in general interested on immediate results losing a long-term perspective on how they could improve the soil overall health.
Economic	To enhance the marketability of circular fertilisers is essential a close and professional relationship with the end-users to overcome the general mistrust. For this reason, the figure of the technical advisor inside the producer staff is highly recommended. Carbon credits seem an important driver to push the circular fertilisers market.
Environmental	Soil health and human safety should be the prevailing point when tackling the deployment of circular fertiliser.
Social	There is a reluctancy to "change their regular business" that sometimes burden the use of circular fertilisers by end-users. Training to technical advisors and farmers associations on the potential benefits from the agronomic and economic point of view are important to overcome this situation. Quality Assurance Schemes at national level are important instruments that Fertiliser Producer Association should consider to overcome general mistrust.

The different co-creation events (workshops, working groups, multitopic-seminar, focus groups) have gathered a total of **1570 participants** (998 of them representing the 3 groups targeted by the project) which fulfil the commitments expected as it can be seen in Table 43.

Table 43. Commitments linked to participation in co-creation activities and achieved values

Commitments regarding participating stakeholders	Achieved values
150 surveys on social acceptance to end-users	360
600 participants (farmers and technicians)	590
120 fertiliser producers engaged in multi-topic seminars	159
10 external stakeholders involved in focus-groups	31
5-10 administrations invited to the working groups	19
30 policy officers/makers participating in a final workshop	19

It should also be highlighted that these co-creation activities have been useful moments where to reinforce the networking activities with other local, national or European project/platforms/initiatives. In particular, FER-PLAY events have collaborated with:

- BÖL project ProBio (in 2 occasions) – Nation project Germany
- Flemish Nutrient Platform (Nutricycle Vlaanderen) – Local platform Flanders
- NOVAFERT project – EU project (in 3 occasions)
- ALFA project – EU project
- IPMworks project – EU project
- Joint with local demonstration project Boost Pocketvergisting & Nabewerking (small-scale anaerobic digestion and processing; in 2 occasions) – Local project Flanders
- Ferticycle project – EU project
- HOOP project – EU project
- CCRI Castilla y Leòn (Circular Cities and Regions Initiative) – EU initiative
- P2greeN project – EU project
- ECOBREED - EU project
- ReNu2Cycle - EU project
- HERMEST – Regional project Flanders
- LIFE BIOBEST – EU project
- Treasource – EU project
- STRATUS – EU project
- SUSFERT – EU project

Last but not least, the project considers that these co-creation activities have been an essential part of the success of the project and all of them have been carried out taking into account the ethical dimension of the objectives, the methodology and the likely impacts.

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