



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

M20 updated version (V2)



Deliverable Information Sheet

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List of Acronyms

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

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Keywords list

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

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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 foresees 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, are involved into discussions with the main scope of feeding FER-PLAY with a wider range of viewpoints that cover real needs and that can be later 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 preliminary outcomes from these co-creation discussions carried out from March 2023 to February 2024. It is conceived as a living document to serve as a “database” of inputs received during the activities with external stakeholders and to provide evidence on the process and will be updated if required.

The main concerns coming from the 19 events organised by partners that have gathered a total of 685 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.

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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 will map and assess circular 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.

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 foresees 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 to be 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 is conducting. To this aim, a specific Work Package has been 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 knowledge¹. 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 will also serve 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.

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

Target group	Achievement indicator	Value	To be reached by
Fertiliser end-user	N. surveys collected	150	M24
Fertiliser producer	N. producers involved	120	M24
Local administration/policy makers	N. administrators involved	30	M24

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

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 **19 co-creation events** carried out up to date (from March 2023 to February 2024, against 27 activities expected by Sep 24), that have involved a total of **685 participants** into discussions and that have **network with 13 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, organization, target group; never sensitive information) has been collected to the people participating in the co-creation activities with a previous informed consent. This information

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is subject of confidentiality and handled in line with the General Data Protection Regulation (2016/679/EU) – the process overseen by the FERPLAY 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. Moreover, it has been also the opportunity to launch the surveys regarding to the social acceptance of circular fertilisers that are being collected by the project within WP2 assessment activities.

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

Commitment targeting the end-users	Deadline	Achieved value (Feb. 24)
150 surveys on social acceptance collected	Aug. 24	360
12 events (see section 2)	Sept. 24	12
600 participants (farmers and technicians)	Sept. 24	296
Number of participants to the events (from other targeted stakeholders: producers and public administration)	Sept. 24	35
Total number of participants to the events (including those beyond targeted stakeholders)	Sept. 24	421

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

Thanks to these co-creation activities, valuable inputs have been received as to be considered in the guidelines to be elaborated by the project (D3.1) 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 12 events with end-users (some in presence and some online) have been celebrated from March 2023 till February 2024, gathering 421 participants (296 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)

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/yy):	30/05/2023
Duration (hours):	2 hours
Impact:	30 participants (30 farmers+technicians)

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

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.

Fertilizantes alternativos para la circularidad y la salud del suelo

fer play



FERTILIZACIÓN

 30 de mayo de 2023
 18:00 pm
 Agustín de Betancourt 17 • 7 Planta • Madrid

18:00 H BIENVENIDA
ASAJA MADRID

18:05 H RADIOGRAFÍA DE LA FERTILIZACIÓN EN ESPAÑA
José Antonio Sotomayor  

18:25 H PROYECTO H2020: FER- PLAY CONDICIONES FAVORABLES PARA LA ABSORCIÓN DE FERTILIZANTES ALTERNATIVOS
Manuel Lucena, ASAJA

18:40H COLOQUIO

18:50H CLAUSURA

Al finalizar se servirá un vino español

 **Más información e inscripciones:**
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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 commercialization 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)

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/yy):	06/06/2023
Duration (hours):	6 hours
Impact:	11 participants (11 farmers+technicians)

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

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.

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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
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
9:00 – 11:30	Besichtigung der Kompostierungsanlage	Stephan Lehmann (Firma Rösl, Leiter)

Öko-Beratungs-Gesellschaft 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: DE62 7005 1540 0000 066 912
Finanzamt Freising | USt-ID-Nr. DE170408212 | Steuer-Nr. 115/134/20198 | HRB 145019 München | Geschäftsführer: Martin Bär



NATURLAND INFORMATION

			Natur- und Umweltschutz)
11:30 - 12:30	Fahrt zum Gemeindehaus 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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Figure 3. Agenda of the workshop on 06/06/2023 in Germany

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES



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)

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/yy):	07/06/2023
Duration (hours):	1.5 hours
Impact:	12 participants (12 farmers+technicians)

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

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



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.

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

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



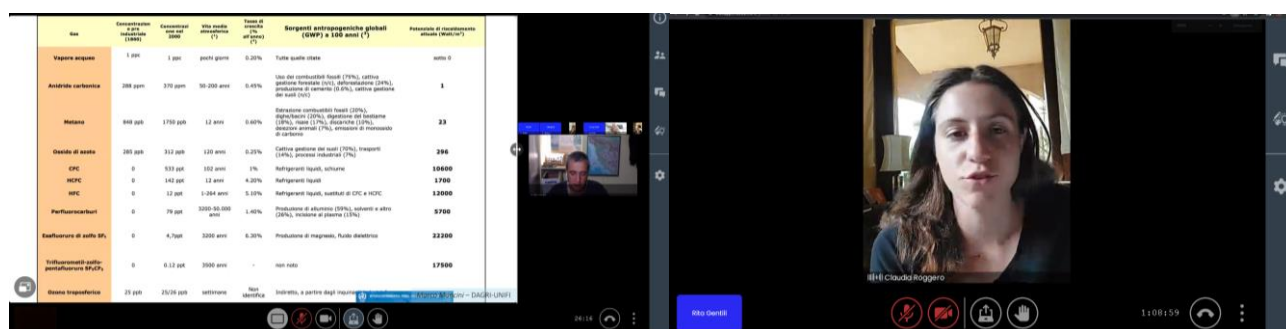


Figure 6. Screenshots from the seminar on 07/06/2023 in Italy

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:

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- Claudia Roggero presented the climate change that affects all agricultural activities, jeopardizing 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)

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/yy):	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)

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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

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).

De toekomst van duurzame landbouw in Vlaanderen Op 20 juni 2023 organiseren we een studienamiddag 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	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	Schrijf je hier in

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES



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.

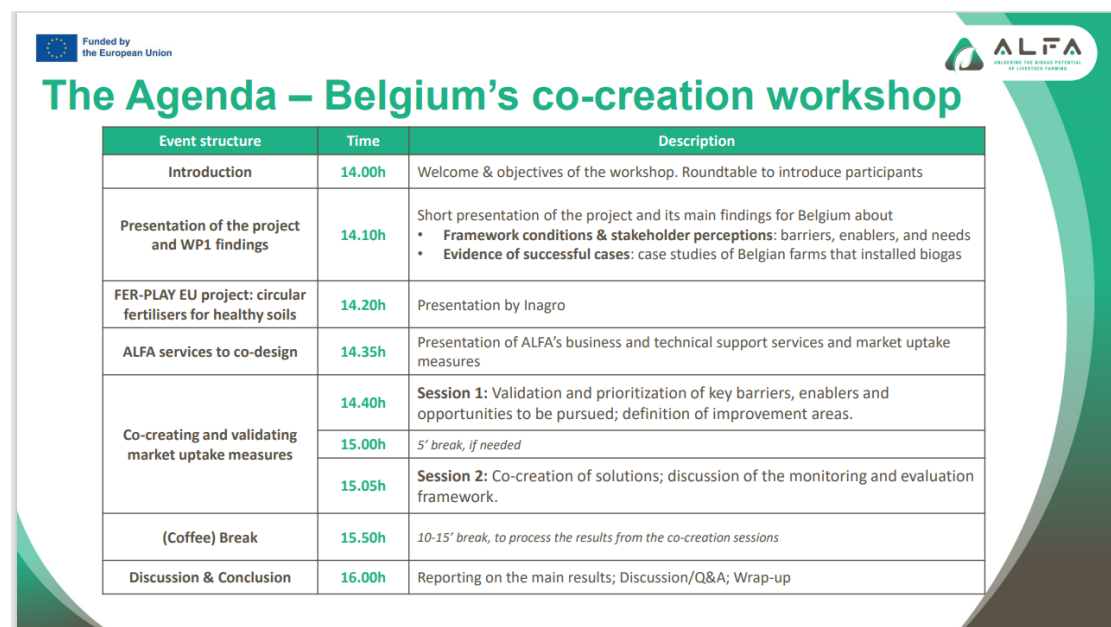
2.5. Event with end-users from EU (28/06/2023)

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/yy):	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)

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

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.



Event structure	Time	Description
Introduction	14.00h	Welcome & objectives of the workshop. Roundtable to introduce participants
Presentation of the project and WP1 findings	14.10h	Short presentation of the project and its main findings for Belgium about <ul style="list-style-type: none"> Framework conditions & stakeholder perceptions: barriers, enablers, and needs Evidence of successful cases: case studies of Belgian farms that installed biogas
FER-PLAY EU project: circular fertilisers for healthy soils	14.20h	Presentation by Inagro
ALFA services to co-design	14.35h	Presentation of ALFA's business and technical support services and market uptake measures
Co-creating and validating market uptake measures	14.40h	Session 1: Validation and prioritization of key barriers, enablers and opportunities to be pursued; definition of improvement areas.
	15.00h	5' break, if needed
	15.05h	Session 2: Co-creation of solutions; discussion of the monitoring and evaluation framework.
(Coffee) Break	15.50h	10-15' break, to process the results from the co-creation sessions
Discussion & Conclusion	16.00h	Reporting on the main results; Discussion/Q&A; Wrap-up

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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

The challenge

Conventional fertilisers

- **Finite**, often **imported**, resources + energy-intensive
- Fast release of nutrients

Crop nutrient uptake

- 25-50% of the available Nitrogen(N),
- 17% of phosphorous (P), and
- 50% of potassium (K)

Excess nutrients

- Soil leaching
- **Degradation of ecosystems and water and soil quality**
- **Reduction of the soil's capacity to sequester CO₂**

ferplay

FER-PLAY's process

September 2022 - February 2025

Stakeholder groups targeted:

- Fertiliser producers
- Public administrations
- Farmers and farmers associations
- Waste valorisation & agricultural researchers

step 1 Mapping and selection of alternative fertiliser value chains

step 2 Assessment of impacts of 7 selected value chains

step 3 Dissemination and assessment guidelines co-creation with multiple stakeholders

step 4 Raising awareness and influencing policy

Completed March 2023

Started April 2023

ferplay

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:

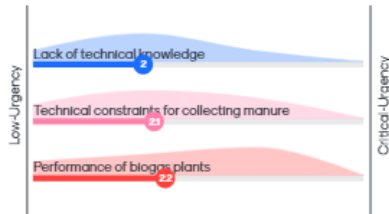
- After the introduction, ALFA project and its results were presented.
- Then FER-PLAY presentation on circular fertilisers took place.
- The next step was the explanation of ALFA service for co-design.
- The important part of the discussion was the one about co-creation and validation of market introduction 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).

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

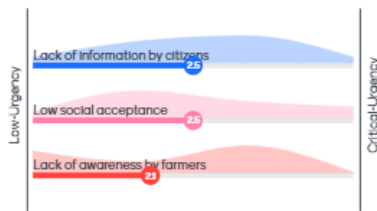
Technical barriers: Categorize the following barriers from Critical-Urgency to Low-Urgency.



Business/administrative barriers: Categorize the following barriers from Critical-Urgency to Low-Urgency.



Social barriers: Categorize the following barriers from Critical-Urgency to Low-Urgency.



Rank the following barriers from Critical-Urgency to Low-Urgency.

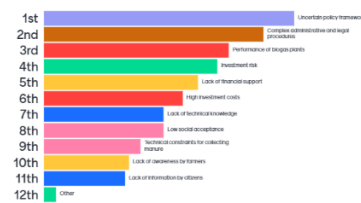


Figure 11. Polls concerning barriers for farm-scale anaerobic digestion implementation

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

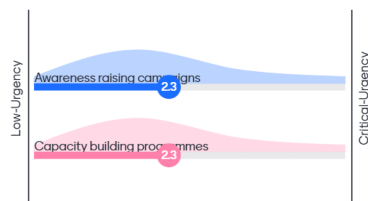
Business/admin support needs: Categorize the following needs from Critical-Urgency to Low-Urgency.



Technical support needs: Categorize the following needs from Critical-Urgency to Low-Urgency.



Awareness raising and capacity building needs: Categorize the following needs from Critical-Urgency to Low-Urgency.



Rank the following needs from Critical-Urgency to Low-Urgency.



Figure 12. Polls concerning the needs in support

2.6. Event with end-users from Belgium (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/yy):	30/06/2023
Duration (hours):	2.5 hours
Impact:	36 participants (24 farmers+technicians)

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




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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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 stabiel 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, Sensation en RendezVous)
 - Meervoudig hergebruik van substraat
 - Witzielte beheersen op basis van pathogeen-ontwikkeling
- Afsluiten met een drankje

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

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 them 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)

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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/yy):	07/09/2023
Duration (hours):	3 hours
Impact:	16 participants (3 farmers+technicians; 1 fertiliser producer; 3 representatives of PA)

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

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.



Demodagen nutriëntenrecuperatie

Donderdag 7/9/2023, 12h30-16h
Aquaflin Antwerpen-Zuid,
Kielsbroek 5, Antwerpen

Vrijdag 15/9/2023,
12h30-15h: Het Blommenhof,
Guido Gezelleplein 12, 8840 Staden
15h15-16h00: Biosterco,
Grote Stadenstraat 9, 8830 Hooglede

De hoge energie- en kunstmestprijzen brengen uitdagingen maar ook opportuniteiten met zich mee. Het is steeds zinvoller om zelf energie of kunstmest te produceren. Maar welke technieken kan je dan gebruiken en wat laat de wetgeving toe? Met het demoproject 'Boost pocketvergisting en nabewerking' gaan we de sector bewuster maken van deze technieken en de bedrijven ondersteunen in een doordachte keuze.

Bij de eerste demotoer van maart 2023 lag de focus op de pocketvergisters. Deze keer focussen we op de nabewerkings-technieken van mest of 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 je eigen mest.

Op 7 september gaan we een stikstofstripper/scrubber bezoeken die operationeel is bij een RWZI van aquafin in Antwerpen. Je mag alvast je eigen werkschoenen en helm meenemen voor de rondleiding. Er worden er ook ter plaatse voorzien.

Op 15 september gaan we dan weer langs bij een grotere stripper/scrubber die bij een mestverwerker in Hooglede staat waarbij de dunne fractie van varkensmest behandeld wordt met daarna nog een biologie en rietveld.

We spreken wel eerst af in een zaaltje in Staden en rijden daarna samen door naar Biosterco.

We voorzien voor beide activiteiten een broodjeslunch. We hopen jullie te mogen ontvangen!

Programma

12h30
 Ontvangst met broodjes
 13h00
 Introductie
 13h10
 Nabewerking van mest en/of digestaat: wat is het en waarom kan het interessant zijn?
 13h50
 Updates wetgeving over pocketvergisting, bewerkingstechnieken en vergunningen
 14h15
 Constructeur aan het woord
 15h00
 Bezoek aan lokale installatie
 16h00
 Einde

Inschrijven en kostprijs

Deelname aan deze events is gratis, maar inschrijven is wel verplicht.

[Dag 1: klik hier](#)

[Dag 2: klik hier](#)

Meer info

Voor meer info kan je terecht bij
 Laurens Vandelanoot via
laurens@boerenbond.be



het demoproject 'Boost pocketvergisting en nabewerking' wordt gefinancierd door het Europees Landbouwfonds voor Plattelandsontwikkeling - Europees investeringsplan in agri-platteland www.afislandbouw.be/demoproject

Europees Landbouwfonds voor Plattelandsontwikkeling
 Europa investeert

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 field trial 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)

Responsible partner:	NATURLAND
Target public:	Farmers, advisers, producers
Type of event:	Workshop


D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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/yy):	12/09/2023
Duration (hours):	4 hours
Impact:	11 participants (11 farmers+technicians)

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

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.



„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 Bio- und Grünkompost 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	Ort	Referent:in
14:00 Uhr	Ankommen, Begrüßung und Vorstellung	AWR BioEnergie GmbH Borgstedtfelde 15 24794 Borgstedt Link in Google Maps
14:15-15:45	Besichtigung der Kompostierungsanlage	
15:45-16:00	Kaffeepause	

Öko-Beratungs-Gesellschaft mbH | Eichthof 1 | 85411 Hohenkammer
Tel. 08137 / 6372 -902 | Fax 08137 / 6372 -919 | info@naturland-beratung.de | www.naturland-beratung.de
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Geschäftsführer: Martin Bär





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







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

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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, fertilizing 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 fertilizers, 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 fertilizers 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)

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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/yy):	15/09/2023
Duration (hours):	3 hours
Impact:	56 participants (29 farmers+technicians; 2 fertiliser producer; 4 representatives of PA)


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

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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

Is deze mail niet goed leesbaar? [Klik hier voor meer info](#)



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 'Boost pocketvergisting en nabewerking' zullen we de sector bewuster maken van deze technieken en 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 je eigen mest.

Interesse? Kom langs op onze studiedag op vrijdag 15 september. Op 7 september houden we 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



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

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Ieperseweg 87, 8800 Rumbek-Betsm
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[Pas mijn voorkeuren aan/afschrijven](#)





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

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)

Responsible partner:	NATURLAND
Target public:	Farmers, advisers; NGOs
Type of event:	Conference
Modality:	In presence

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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/yy):	24/01/2024
Duration (hours):	1 hour
Impact:	76 participants (76 farmers+technicians)


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

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.

Naturland Information

Naturland Ackerbautagung Süd



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

Ort: Tagungshaus Himmelsporten, 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.




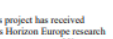
Anmeldung: Online bis **09.01.2024** auf unserer Naturland Homepage
[Veranstaltungen in der Region | Naturland Beratung](#)

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 Brämser, Deutscher Wetter Dienst
11:00 Uhr	Gewinner und Verlierer im Anbau: eine Perspektive für Deutschland	Dr. Til Felke, 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 legum Vorrucht auf die Sortenwahl bei Winterweizen	Peer Urbatzka, LfL
16:30 Uhr	Wirkt eine Düngung von Kalium, Magnesium und Schwefel bei Erbsen, Mais und Weißer Lupine sowie von Bor auf Ackerbohne?	
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:

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Geschäftsführer: Martin Bär

Naturland Information


Naturland Ackerbautagung Süd



Programm: Donnerstag, 25. Januar 2024

8:30 Uhr	Maßnahmen zur Verbesserung der Biodiversität im Ackerbaubetrieb	Wiltrud Fischer, Biosphärenreservat Rhön Eberhard Röder, 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	Marktgemeinschaft der Naturland Bayern AG
14:30 Uhr	Aktuelle Fragen zu GLÖZ und Düngeverordnung	Stefan Veeh, Beratung für Naturland
15:30 Uhr	Ende der Veranstaltung	

Gefördert durch:



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

Seminargebühr 24.01.2024, Naturland Mitglied	Kostenfrei
Seminargebühr 24.01.2024, <u>kein</u> 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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Geschäftsführer: Martin Bär

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

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)

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):	Online, BE
Date (dd/mm/yy):	26/02/2024
Duration (hours):	1h 40 minutes
Impact:	27 participants of 65 registered (10 farmers+technicians; 3 fertiliser producers; 4 representatives PA)

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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.

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 download automatico delle immagini da Internet.

Inès Verleden

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[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.

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

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

Levenscyclusanalyse

Stedelijk afvalwater	Struviet
Industrieel afvalwater	Struviet
Rioolslib	Gestabiliseerd slib
Bioafval	Compost
Biologische bijproducten	Verenmeel
Digestaat	Dikke fractie digestaat
Bewerkte mest	Champost

Participants visible in the video call: DEGRAVE TONY (gast), Dirk Vervloet, Lukas Puffet, Maarten Verbrugghe, Fried van o..., Tuyl van ..., Reindert D..., Pieter De ..., Ines Ver... (+12)

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)

Responsible partner:	COLDIRETTI
Target public:	End users (agricultural companies, fertilization companies, technicians, researchers)
Type of event:	Webinar

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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):	Online, IT
Date (dd/mm/yy):	27/02/2024
Duration (hours):	2h 30 minutes
Impact:	76 participants (73 farmers+ technicians)

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

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.



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 particolare modo del digestato, sia dal punto di vista legislativo che economico.

Modererà 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](#)

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

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

WebinarAGER_Ambiente_27Feb2024 (1).mp4 - Lettore multimediale VLC

Media Riproduzione Audio Video Sottotitoli Strumenti Visualizza Aiuto

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Obiettivo del webinar

L'obiettivo del webinar è coinvolgere gli agricoltori in un dibattito su come **aumentare l'utilizzo di fertilizzanti circolari** in agricoltura e come rendere gli **agricoltori stessi protagonisti del cambiamento**.

In seguito agli interventi dei relatori, uno spazio sarà dedicato a raccogliere le necessità delle aziende agricole e identificare le **barriere** all'utilizzo di fertilizzanti circolari, e in particolare modo del digestato, sia dal punto di vista **legislativo che economico**.

📧 invia messaggio via chat cliccando su schermo [Interroghi conduttore](#) [Relatori](#)

fer play

Contenuto	Relatori
Saluti introduttivi	Prof. Stefano Macchi, Responsabile Area Ambiente e Qualità Dott. Fabio Pellegrini, Direttore Agen. S.r.l.
Presentazione del progetto FCB-PLAY	Relatore Conduttore
Fertilizzanti circolari: approfondimento sull'uso del digestato	Intervengono: Prof. Fabrizio Adani, Università di Milano Dott. Marco Mancini, Università di Firenze Dott. Leonardo Verdi, Università di Firenze
Intervento Conoscenza Italiana Biogas	Dott. Piero Galvani, Presidente del CIB
Intervento Conoscenza Italiana Compostaggio	Dott. Massimo Caramanna, Direttore del CIB
Finire	Intervengono: Dott. Tiziana Galvani, CIB Nazionale Carboni Dott. Agostino Galvani Carboni, Novara S.r.l. Dott. Michele Falce, Novara S.r.l. Dott. Luca Maria Lottini Carboni, Presidente Carboni S.r.l.
Conclusione e ringraziamenti	

📄 Posta Certificata Legalmail
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RINNOVA L'ATTENZIONE ASSOCIATIVA
COLIBRETTI
Ricevuta di avvenuta consegna

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15:40:00

Andrea Pavani

zelda baldovino

Gabriele Geromet

Lorella Rossi - CIB

Marco Mancini - UNIFI

Leonardo

15:42:24

Andrea Pavani

zelda baldovino

Lorella Rossi - CIB

Marco Mancini - UNIFI

Leonardo Verdi

Gabriele Geromet

Argentino

fabrizio Adani UNIFI

DEMETRIO

VERONA -DAVIDE ...

VERONA -DAVIDE MANFRIN

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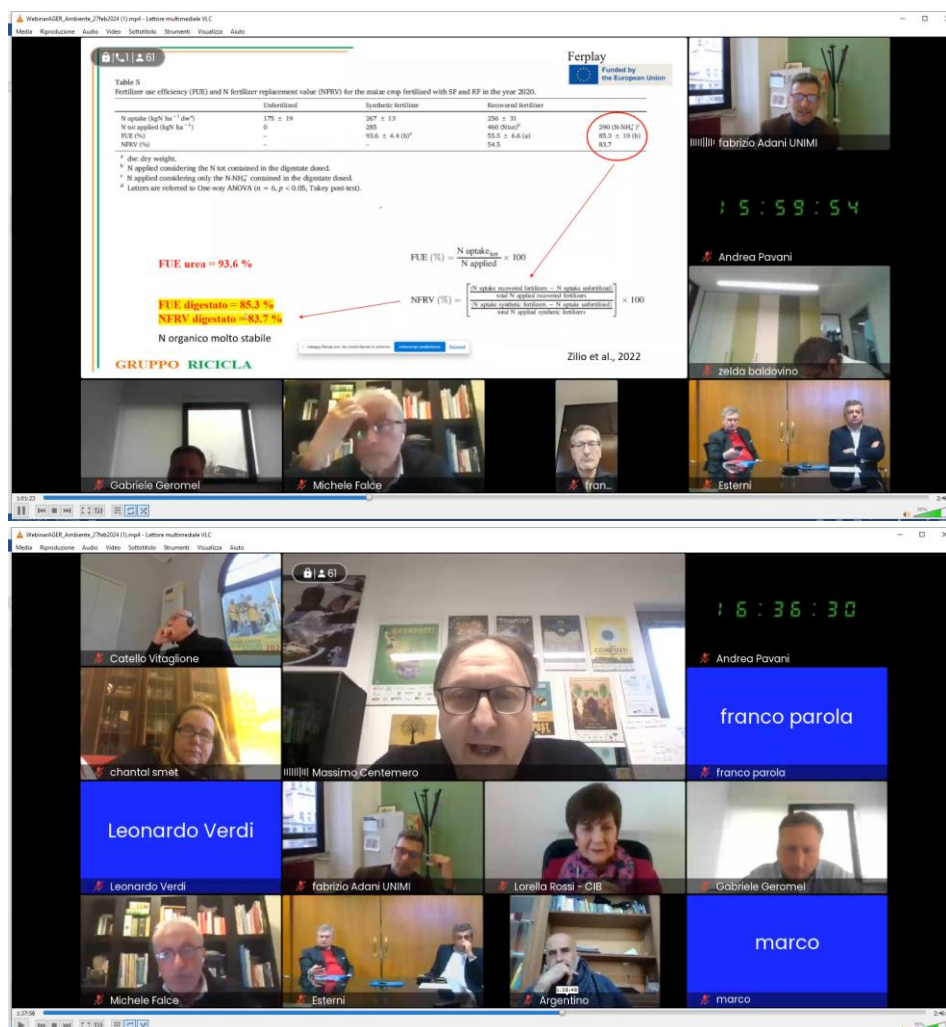


Figure 27. Screenshots from the webinar on 27/02/2024 in Italy

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 optimize 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 fertilizers, 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 fertilizers.
- Provision of advanced variable rate fertilization tools.
- Monitoring, prescribing and collection maps.
- Tools to contain nutrient losses from the soil system.

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 provides the main data related to the commitments from these events and the achievements obtained so far.

Commitment targeting the producers	Deadline	Achieved value (Feb.24)
4 multi-topic seminars	Aug. 24	2
120 fertiliser producers engaged in seminars	Aug. 24	22
Number of participants to the events (from other targeted stakeholders: farmers/technicians and public administrations)	Aug. 24	5
Total number of participants to the seminars (including those beyond targeted stakeholders)	Aug. 24	84
5 focus-groups	April 24	2
10 external stakeholders involved in focus-groups	April 24	17
Number of external stakeholders involved in the focus groups representing the 3 target groups	April 24	9
Total number of participants to the focus groups (including those beyond targeted stakeholders)	April 24	33

Table 16. Commitments linked to the co-creation activities dedicated to circular fertiliser producers

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) will be 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 4 events, organised by EBA and CIC, have been carried out, counting with 117 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)

Responsible partner:	EBA
Target public:	Producers, circular fertilisers stakeholders
Type of event:	Multitopic 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/yy):	20/09/2023
Duration (hours):	1 hour 20 minutes
Impact:	43 participants (2 fertiliser producers; 3 representative PA)

Table 17. Event Main Features (Meeting in Belgium on 20/09/2023)

On 20/09/2023 EBA co-organized 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 organized withing WP3, with the aim to gather feedback on commercial and regulatory drivers for using and raising awareness regarding circular fertilizers. 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 28.



BIOREFINE
CLUSTER EUROPE

ESNI CONFERENCE

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

Towards a harmonized approach on sustainability assessment of nutrient recovery pathways: setting LCA methodological priorities

Organised by NOVAFERT

Technology

Technologies for nutrient recovery from wastewater

Co-organised by WALNUT and ULTIMATE

Stakeholders perspective

Profitability and market acceptance of bio-based fertilizers

Co-organised by FERTIMANURE and FERTICYCLE

12:45 - 13:45 Lunch and poster session

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

13:45 - 15:05 Parallel workshops: Session 2

Policy perspective

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

Co-organised by FERTICYCLE and FER-PLAY

Technology

Standardise algae circular products to market in agricultural applications

Co-organised by EU4Algae and SEMPRE-BIO

Stakeholders perspective

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

Co-creation workshop towards optimizing nutrient flows and budgets in sustainable agriculture: mitigation measures, KPIs and modelling

Co-organised by NUTRIBUDGET and NUTRI2CYCLE

Technology

Bio-based fertilisers recovery from manure and fishery wastes: lessons learnt and future perspectives

Co-organised by FERTIMANURE and SEA2LAND

Stakeholders perspective

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



in collaboration with:



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 fraction of digestate. We will 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

Figure 28. Agenda of the part of the meeting dedicated to FER-PLAY on 20/09/2023 in Belgium

In Figure 29 some photos taken during the meeting are presented.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

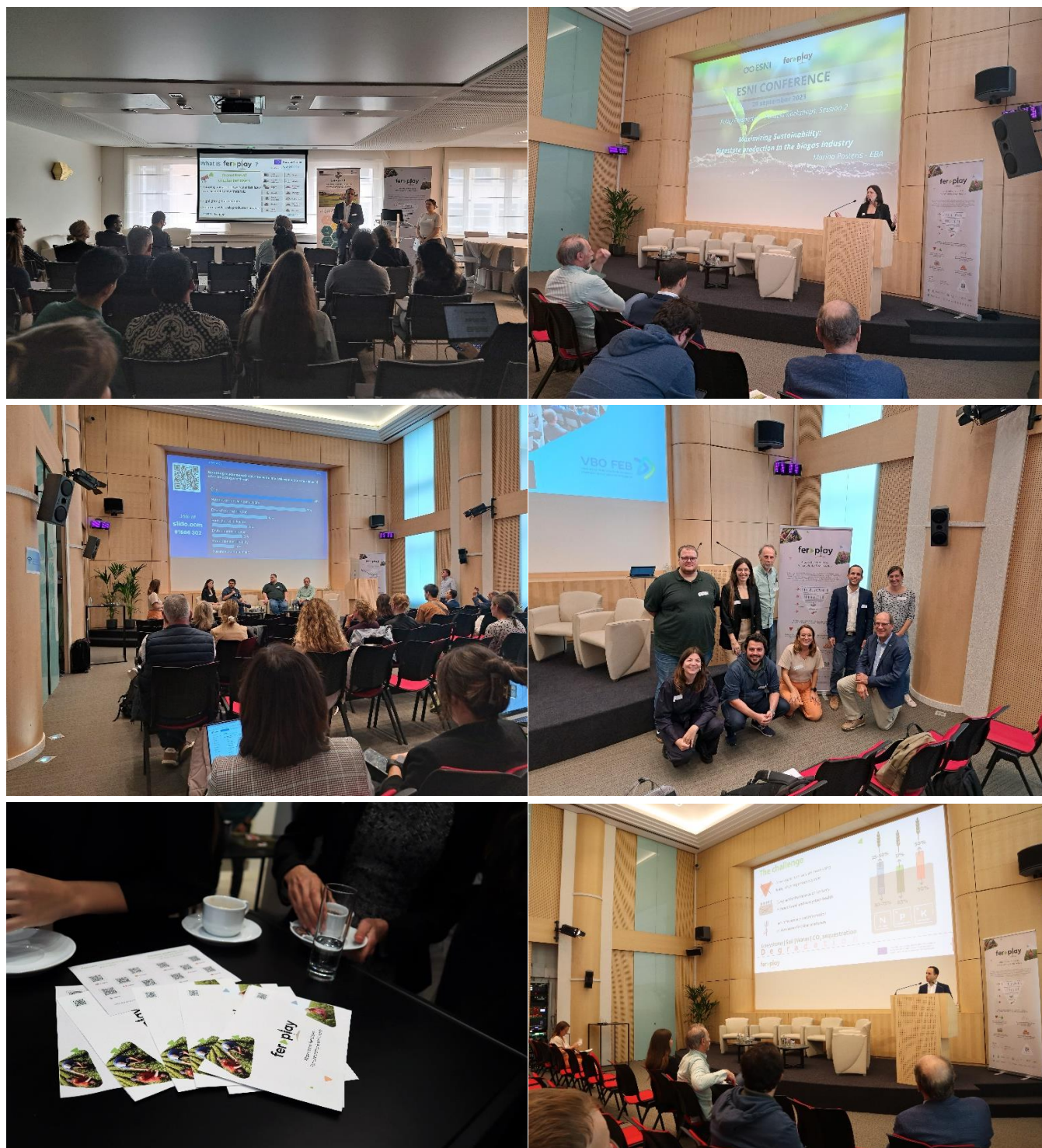


Figure 29. Pictures from the meeting on 20/09/2023 in Belgium

3.1.1. SUMMARY OF THE DISCUSSION

EBA (Mieke Decorte, Technical & Project Manager) welcomed the audience to the workshop co-organized by FER-PLAY and Ferticycle projects. Two short presentations about the two projects co-organizing 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 fertilizers.
- In order for P rich biowastes to match the efficiency of mineral P fertilizers, 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 commercialization 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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- Though challenge is in producing MARKET PULL product: size / morphology / hardness = UNIFORMITY
- Post processing will be key = grinding / additives / re-granulation / biological activation.
- Centralization 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 fertilizers (Haber–Bosch-derived), 9.4% phosphorus fertilizers and 5.1% potassium fertilizers.
- 8.8 Mt of CO₂ 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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- Environmental aspects
- Production sustainability

To speakers: How does your circular fertilizer 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 fertilizer for farmers / end-users?

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

- 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 commercialization of the circular fertilizer?

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

To speakers: What are the biggest challenges that your presented circular fertilizer 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 30 and Figure 31. 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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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.

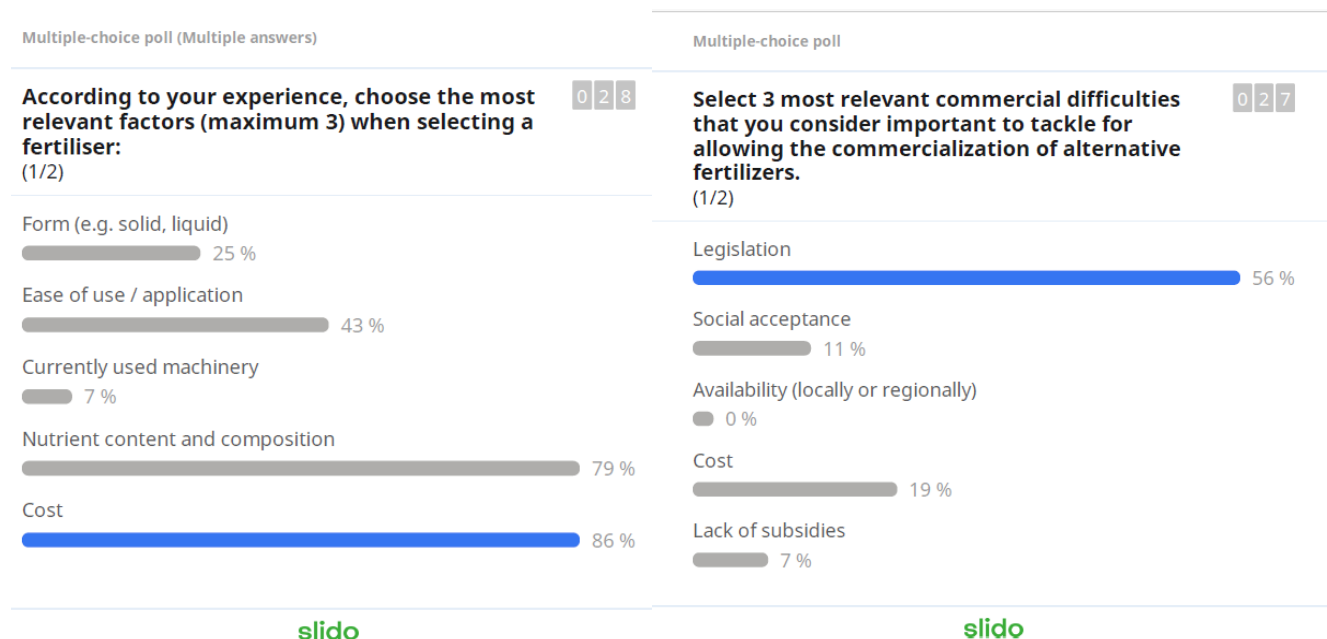


Figure 30. Results of Question 1 (left) and Question 2 (right)

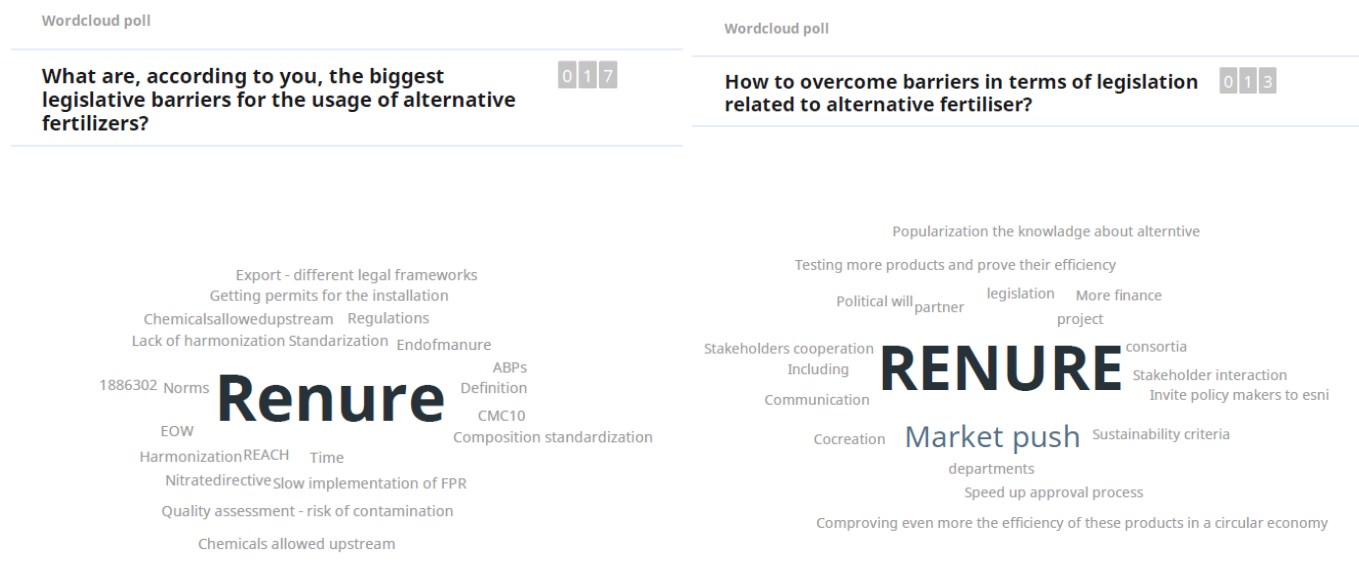


Figure 31. Results of Question 3 (left) and Question 4 (right)

3.1.2. RELEVANT OUTCOMES FOR THE PROJECT

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 commercialization 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)

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/yy):	14/12/2023
Duration (hours):	2 hours
Impact:	17 participants (8 external stakeholders from which 3 fertiliser producer and 2 representatives of PA)

Table 18. Event Main Features (Meeting on 14/12/2023)

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 32 some pictures taken during the online meeting are represented.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

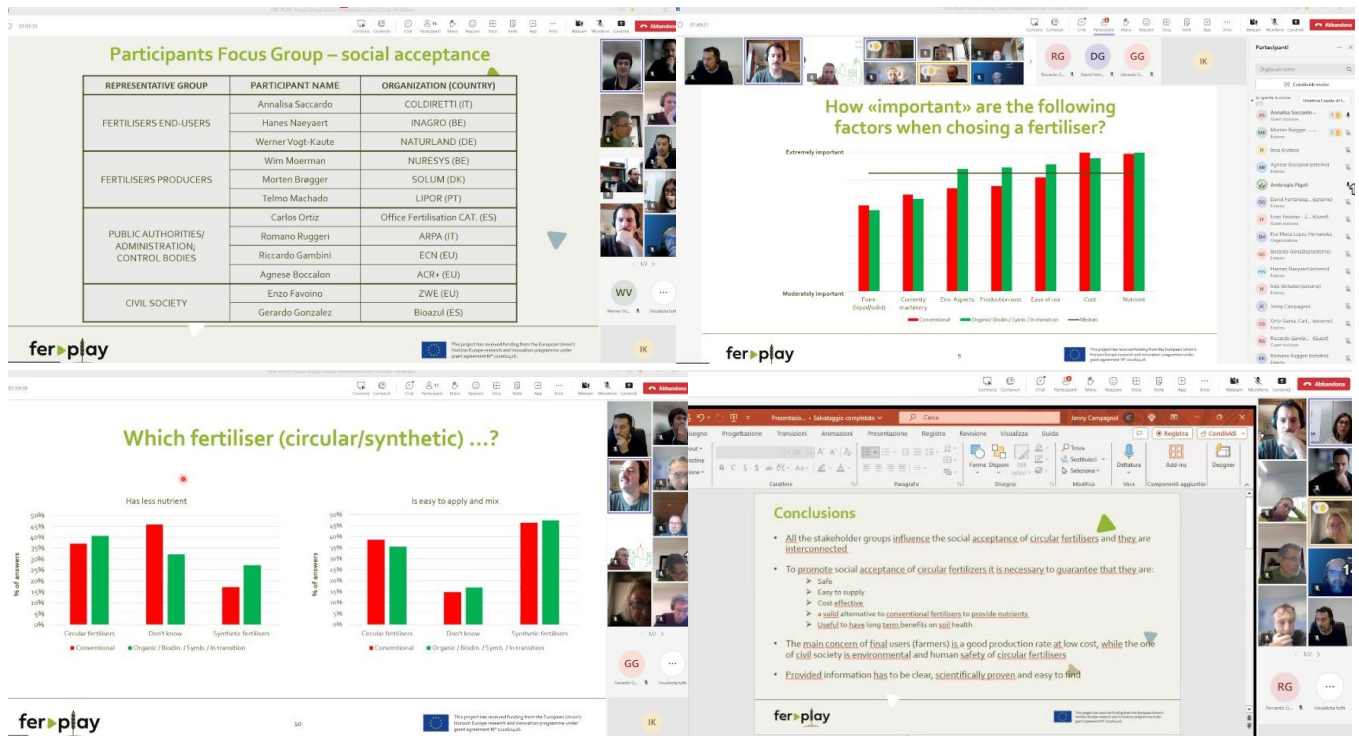


Figure 32. Pictures from the meeting on 14/12/2023

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 incentivisation 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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 producers from EU (01/02/2024)

Responsible partner:	CIC
Target public:	Producers, circular fertilisers stakeholders
Type of event:	Multitopic 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/yy):	01/02/2024
Duration (hours):	2 hour 30 minutes
Impact:	41 participants (20 fertiliser producers; 2 farmer+technicians)

Table 19. Event Main Features (Meeting in Italy on 01/02/2024)

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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 hold in Italian language, offering the possibility for simultaneous translation to English.

The agenda of the Event is shown in the following Figure 33.

FIERA AGRICOLA
116th INTERNATIONAL AGRICULTURAL TECHNOLOGIES SHOW

ferplay

CONSORZIO ITALIANO COMPOSTATORI

XI
Forum on Composting and Anaerobic Digestion
Organic fertilizers, challenges and opportunities

The event is organised in the framework of the FER-PLAY project

Veronafiere
Room Vivaldi

1st february 2024 10:30-13:00

ORE 10:30 - 10:40 Opening of the seminar
L. Miccolis, President of Consorzio Italiano Compostatori (CIC)

ORE 10:40 - 11:00 The valorization of organic fertilisers: the trend lines in Europe and Italy
M. Centemero, General Director of CIC

ORE 11:00 - 12:00 The enhancement of the products of the recycling of organic matrices
Moderates *A. Confalonieri, Coordinator of Technical Committee of CIC*

- Progetto FER-Play, Multi-assessment of alternative fertilisers for promoting local sustainable value chains and clean ecosystems
A.B. Pigoli, CIC
- The impact of compost on biological fertility and crop health assessed through the response of soil microbial components
L.M. Manici - CREA Bologna
- Use of organic fertilisers, its effects on soil fertility and carbon management in a lowland soil: Navarra Project 2018-2023
M. Grigatti, Dipartimento di Scienze e Tecnologie Agro-Alimentari - University of Bologna

ORE 12:00 - 12:45 Testimonials from organic fertiliser producers. Research as a tool to break down barriers to market development.

- S.E.S.A. Spa | *W. Zanardi, T. Bonato, C. Nicoletto* *University of Padova
- Acea Pinerolese Spa | *D. Bona*
- COSMARI | *M. Rogante, A. La Terza* *University of Camerino

ORE 12:45 - 13:00 Final discussion and closure of the seminar

CONTATTI
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Figure 33. Agenda of the multi-topic seminar hold on 01/02/2024 within the International Agriculture Fair of Verona

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

In Figure 34 some photos taken during the meeting are presented.



Figure 34. Pictures from the event hold on 01/02/2024 within the International Agriculture Fair of Verona

3.3.1. 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.

3.3.2. 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.

3.4. Event with stakeholders from EU (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/yy):	06/02/2024
Duration (hours):	2 hours
Impact:	16 participants (9 external stakeholders; 4 fertiliser producer)

Table 20. Event Main Features (Meeting on 06/02/2024)

On the 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 35 presents some pictures of the meeting. One of the external experts invited represented NOVAFERT project.

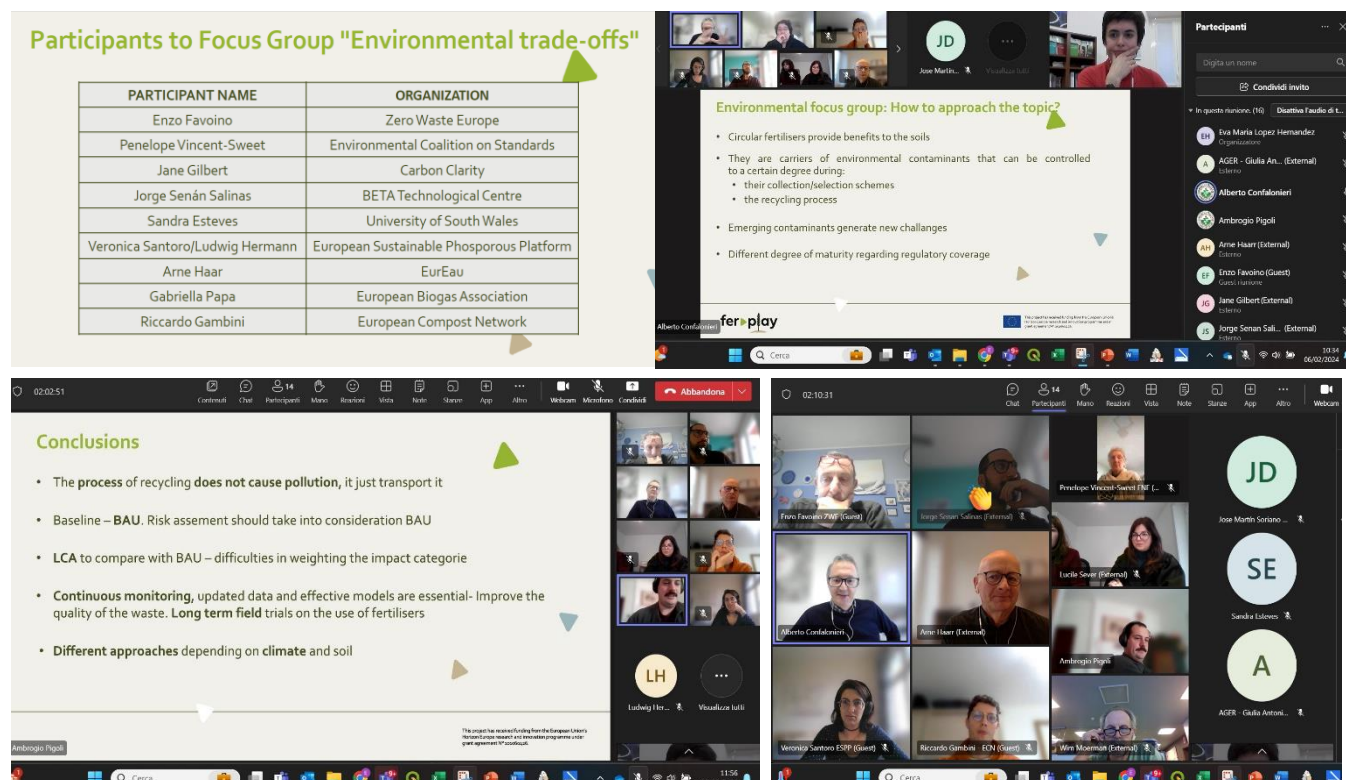


Figure 35. Pictures from the meeting on 06/02/2024

3.4.1. 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:

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 established are safe both for the environment and for the human.

3.4.2. 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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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.

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 will be included in the guidelines (D3.3) to be elaborated by FER-PLAY project targeting the public administrations and to the assessment of the Regulatory Framework to be performed in WP2 “Multi-assessment of impacts, trade-offs and framework conditions of selected alternative fertiliser value chains”.

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

Commitment targeting the policy-markers	Deadline	Achieved value (Feb. 24)
2 working-groups with administrations	Aug. 24	1
5-10 administrations invited to the working group	Aug. 24	6
Number of participants to the online meetings (from fertiliser end-users and producers)	Aug. 24	10
Participants to the working group (including those beyond the administrations)	Aug. 24	47
3 online meetings with stakeholders	Aug 24	2
Number of participants to the online meetings (from the 3 target groups)	Aug 24	26
Participants to the online meetings	Aug 24	100
30 members participating in a final workshop	Aug 24	-

Table 21. Commitments linked to the co-creation activities dedicated to the public administration

As detailed above, the project has so-far organised 3 co-creation events thanks to the efforts of partners EBA and ACR+, gathering a total of 138 participants into discussions. The following sections detail the main features and outcomes resulting from each of them.

In addition, it should be highlighted that an online platform will be available inside FER-PLAY website to gather the feedback from the public administration. Its elaboration is currently under process.

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

Responsible partner:	EBA
Target public:	Policy officers from EU organizations, 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/yy):	18/09/2023
Duration (hours):	1 hour
Impact:	51 participants (9 fertiliser producers; 5 representatives of PA)

Table 22. Event Main Features (Meeting on 18/09/2023)

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 36.

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 chompost. 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 <ul style="list-style-type: none"> • Lucile Sever, Policy Officer, EBA
13:05 – 13:15	FER-PLAY: facilitating the uptake of alternative fertilisers for circularity & soil health <ul style="list-style-type: none"> • Martin Soriano, R&D Project Coordinator, CETENMA – Coordinator of FER-PLAY
13:15 – 13:45	Regulatory challenges and opportunities <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Moderator: Lucile Sever



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

Figure 36. Agenda of the meeting on 18/09/2023

In Figure 37 some screenshots taken during the online meeting are presented.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

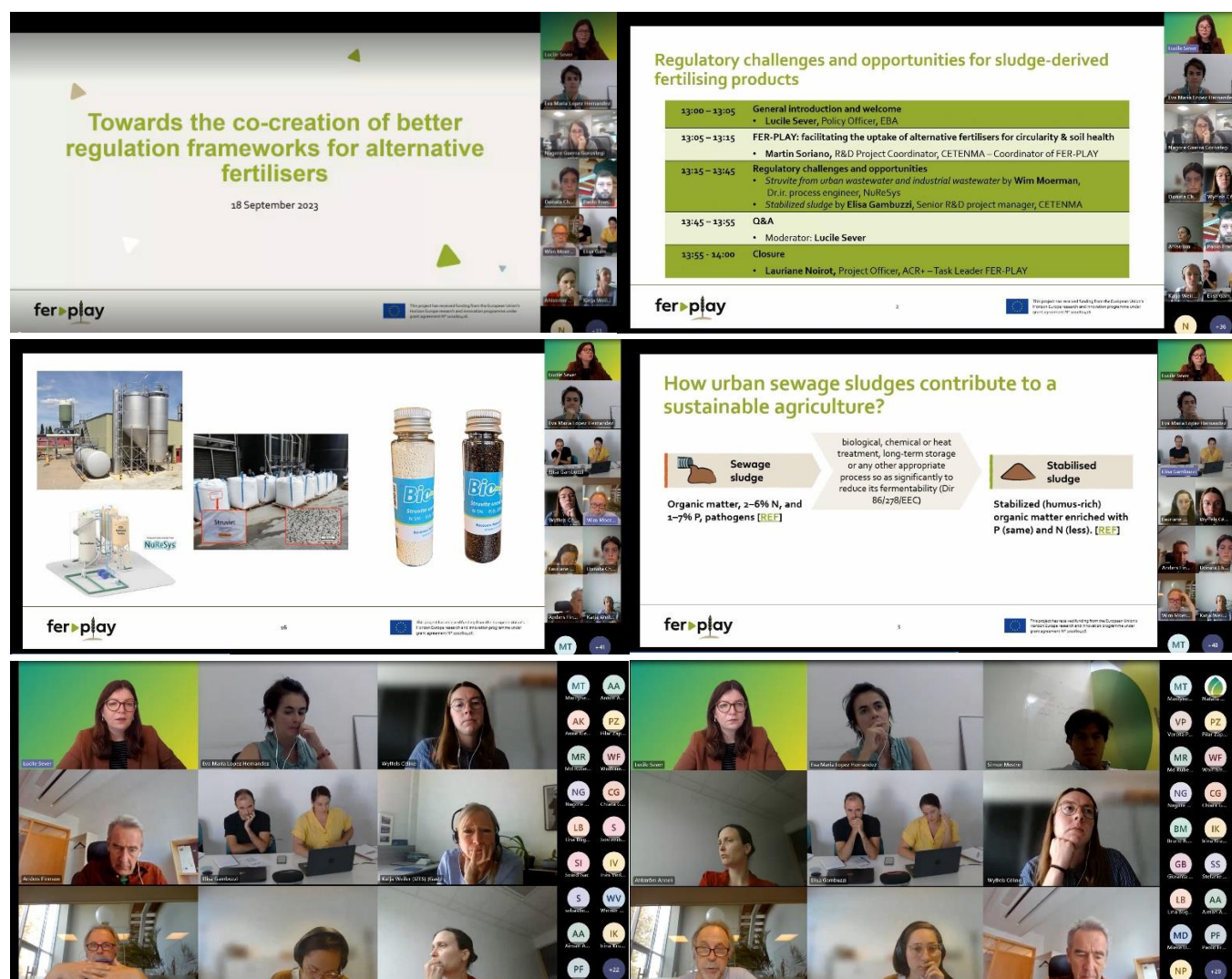


Figure 37. Screenshots from the meeting on 18/09/2023

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:

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 stabilized 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 sludges 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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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)

Responsible partner:	EBA
Target public:	Policy officers from EU organizations, 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/yy):	28/09/2023
Duration (hours):	1 hour

Impact:

49 participants (11 fertiliser producers; 1 representative of PA)

Table 23. Event Main Features (Meeting on 28/09/2023)

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 38.



Figure 38. Agenda of the meeting on 28/09/2023

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

In Figure 39 some screenshots taken during the online meeting are presented.

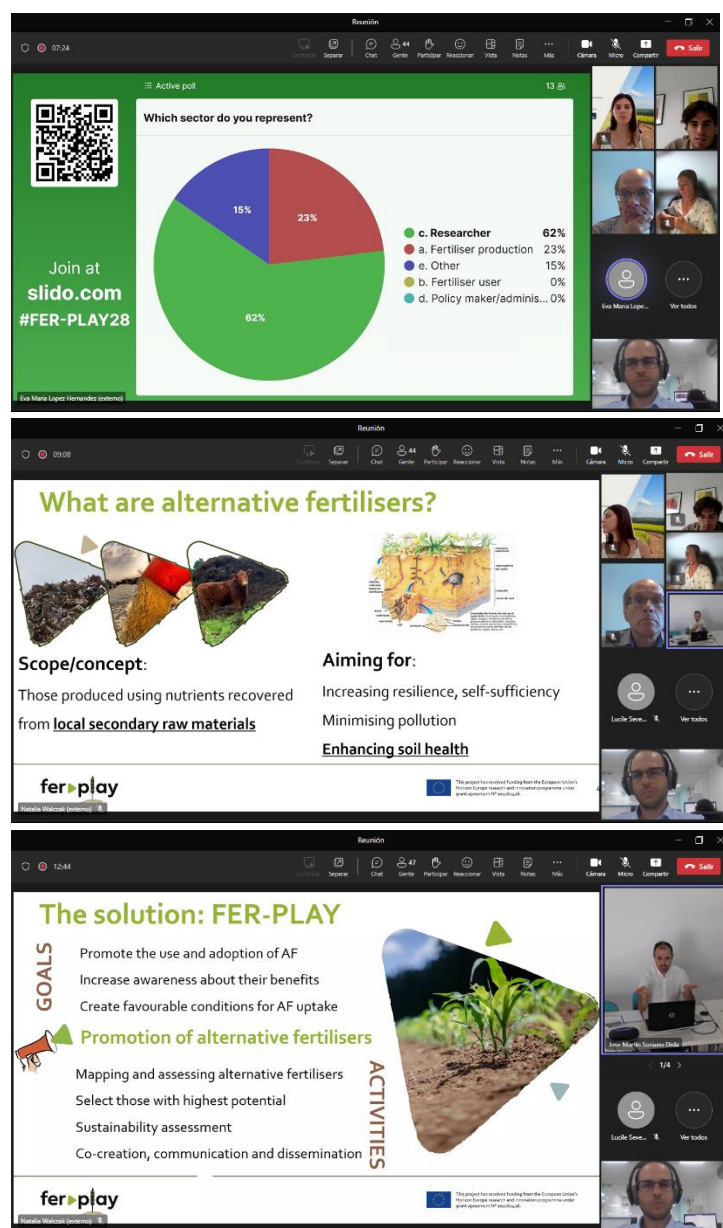


Figure 39. Screenshots from the meeting on 28/09/2023

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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 stabilized 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 Slido 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 commercialized 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 recognized 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 commercialization of this product.

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

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 pasteurization 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 pasteurization, 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 fertilizers, 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 incentivization 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)

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 fertilizer + to gather information for the development of the policy briefs
Date (dd/mm/yy):	07/11/23
Duration (hours):	2.5 hours
Impact:	47 participants (6 representatives of PA; 3 farmers+technicians; 7 fertiliser producers)

Table 24. Event Main Features (Meeting on 07/11/2023)

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 fertilizers, 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 40.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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 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, 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.

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 <ul style="list-style-type: none"> 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

Figure 40. Agenda of the working group on 07/11/2023

In Figure 41 some screenshots taken during the online working group are presented.

The figure consists of three screenshots from a Zoom meeting. The top screenshot shows a presentation slide titled "What are alternative fertilisers?". It includes a diagram of a cow and a field, and text defining the scope and aims. The middle screenshot shows a Zoom meeting interface with a grid of participants and a chat window. The bottom screenshot shows a presentation slide titled "Working group on the promotion of production and use of alternative fertilisers" with logos of participating organizations.

Figure 41. 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.

- Catalanian 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.

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

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.

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 42.

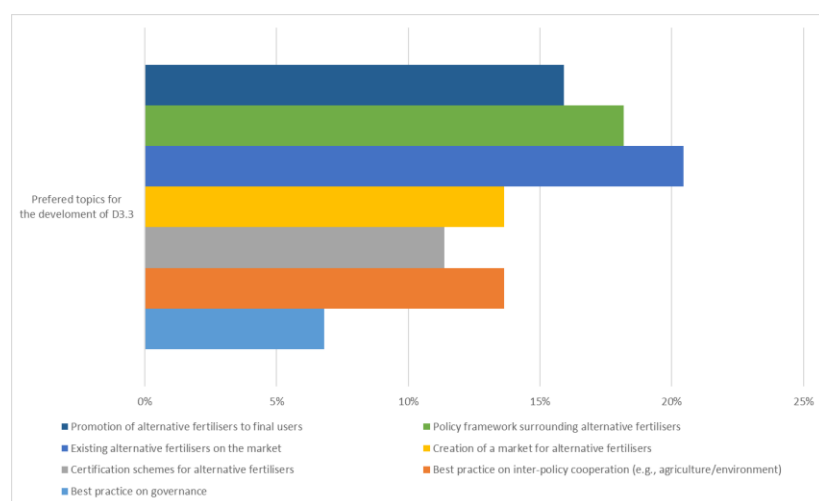


Figure 42. Results of the poll about the preferred topics for the development of D3.3

5. Summary and conclusions

This report includes the main outcomes obtained from the 19 co-creation events organised by project partners from March 2023 to February 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 25 and represent valuable inputs, as they represent 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 to be displayed within the 3 tailor-made guidelines (D3.1-D3.3) and also including the awareness raising campaigns (WP4 “Dissemination, exploitation and communication”).

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.
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 reluctance 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.

Table 25. Summary of main outcomes obtained in the co-creation activities

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

The different co-creation events (workshops, working groups, multitopic-seminar, focus groups) have gathered a total of **685 participants** which fulfil partially the commitments expected as it can be seen in Table 26.

The co-creation activities will continue till September 2024 to reach the impacts expected and go beyond them. An important effort will be placed by partners in the following months to improve the current indicators, with special attention on the type of stakeholder targeted.

Commitments regarding participating stakeholders	Deadline	Achieved value (Feb. 24)
150 surveys on social acceptance to end-users	Aug. 24	360
600 participants (farmers and technicians)	Sept. 24	296
120 fertiliser producers engaged in seminars	Aug. 24	22
10 external stakeholders involved in focus-groups	April 24	17
5-10 administrations invited to the working group	Aug. 24	6
30 members participating in a final workshop	Aug 24	-

Table 26. Main commitments linked to participation in co-creation activities and current values

Even though the project considers that each target group is developing the corresponding co-creation role assigned according to Table 1, an important effort will be placed by partners in the following months to improve the current indicators, with special attention to the fertilisers producers who are a category not showing high availability to participate into the project activities. Despite the fact that the project displayed an important dissemination campaign to foster engagement during the 1st multitopic seminar organised by EBA no big results were obtained. Special key messages will be addressed to them as to improve the current situation. It should also be considered that fertiliser producers have participated in other types of activities (like the workshop organised in the occasion of the General Assembly hold in Cartagena).

In addition, it should be mentioned that an online platform will be available inside FER-PLAY website to gather the feedback from the public administration. Its elaboration is currently under process.

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 2 occasions)

D3.4. PRELIMINARY OUTCOMES FROM THE CO-CREATION PROCESSES

- 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 León (Circular Cities and Regions Initiative) – EU initiative
- P2greeN project – EU project
- ECOBREED - EU project
- ReNu2Cycle - EU project
- HERMEST – Regional project Flanders

Last but not least, the project considers that these co-creation activities are an essential part of the success of the project and are being carried out taking into account the ethical dimension of the objectives, the methodology and the likely impacts.



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