



Novafert

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D5.1 – Mapping of stakeholders and engagement strategy

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List of abbreviations

Abbreviation	Meaning
BCE	Biorefine Cluster Europe
CA	Consortium Agreement
CSA	Coordination and Support Action
D	Deliverable
D&C	Dissemination and Communication
EC	European Commission
EIP-AGRI	Agricultural European Innovation Partnership
ESNI	European Sustainable Nutrient Initiative
ESPP	European Sustainable Phosphorus Platform
EU	European Union
FPR	Fertilising Products Regulation
GA	Grant Agreement
M	Month
NGO	Non governmental organisation
OG	Operational Group
RWG	Regional Working Group
SWOT	Strengths, Weaknesses, Opportunities and Threatens
WP	Work Package
T	Task

Executive Summary

This report is part of the NOVAFERT project T5.1 '*Stakeholder engagement and consultation*', which aims to generate a greater understanding of the current context of the project, actively engage the end-users from different sectors and value chains and gather information on attitudes, opinion and behavior of the concerned stakeholders.

As a first step, the report aims to understand who are the key stakeholders at EU, national and local levels and how NOVAFERT can potentially engage them during the different stages of the project. This first exercise, which is based on the existing networks and connections of the project partners, is a preliminary step to establish a first database of interested stakeholders and better define and strengthen the continuous process of stakeholder mapping and engagement strategy over the project lifetime.

The report also provides an overview on the global and local engagement strategies as well as the next actions to further explore the interlinkages between the different stakeholders acting in the fertilisers and agricultural sectors. In doing so, NOVAFERT aims to provide guidance to effectively bridge the research and society interface, assess the uptake of existing and new technologies and produce inputs that will ultimately result in the market uptake of the alternative fertilisers. Further analysis will follow in the forthcoming years and will be reported in D5.2 '*Mapping of stakeholders and engagement strategy – final update*', due by M34.



1. Project scope

In line with the Zero Pollution action plan, the “Farm to Fork” strategy and the new Fertilising Products Regulation, NOVAFERT demonstrates the technical, economic, and environmental feasibility and safe use of a wide portfolio of at least 25 alternative fertilising products, containing recovered nutrients from 6 different waste streams, with the goal of facilitating the replacement of synthetic and mineral fertilisers.

NOVAFERT gathers 9 multidisciplinary actors to achieve this. The environmental aspect is covered by developing guidelines and a consensual method for environmental assessment of alternative fertilizing products. The economic aspect is covered by co-creating novel, circular and green business models. As such, NOVAFERT aims to reduce environmental impacts and external nutrient dependence in agriculture in 6 representative countries from Eastern, Western, Northern, Southern and Central Europe. NOVAFERT maps existing alternative fertilising products across Europe (Fig.1) and develops an Atlas of the nutrient-oriented living labs with the aim to support the development of sustainable local value chains.

By regionally contextualizing and interlinking all main recovering technologies and products, and technically connecting all value chains and key relevant stakeholders in 7 regional working groups and 7-10 lighthouse demo's, NOVAFERT fosters the sustainable use and management of alternative fertilizing products in Europe.

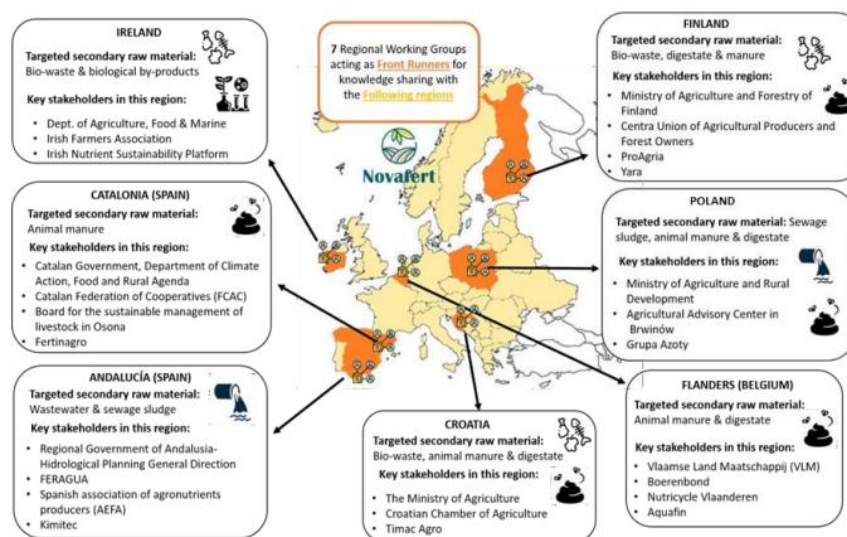


Figure 1. Overview of the main secondary raw material covered by each region and key stakeholders

Moreover, NOVAFERT develops a portfolio of support policies and legislative instruments suitable for local deployment in the EU regions through 7 specific action plans and 4 policy briefs.

Thereby NOVAFERT brings together the necessary information for efficient and safe utilizing of alternative fertilizing products to help decision-making on valorization employed in nutrient recovery.

2. Introduction

2.1 Project background

Fertilising products are used to improve plant growth, mainly in agriculture, enabling higher crop yields. However, when it comes to security of supply, the environment and health, they are associated with some challenges. The objective of the EU Farm-to-Fork strategy is to reduce nutrient losses by 50% by 2030 while preserving soil fertility. The sustainable management of nutrients aims to find the balance between maintaining and enhancing yields while reducing fertiliser-related losses and emissions, environmental impacts and costs. Furthermore, the development of methodologies and processes aimed at enhancing effective nutrient recycling from organic waste streams can help to decrease the reliance of European agriculture on mineral fertilizers from non-EU sources.

The new Fertilising Product Regulation (EU 2019/1009) repealed the fertiliser regulation (EC 2003/2003), and increased the number of CE-marked alternative fertilising products on the EU's market, including organic, organo-mineral and mineral bio-based fertilisers. However, acceptance of these novel alternative fertilising products and thus the increased acceptance for replacing mineral fertilisers requires knowledge sharing among farmers and citizens about their fertilizing efficiency and safety.

Over recent years, EU businesses, as well as research centers and agri-practice centres have invested significantly (amongst others via EU projects) in setting up recycling processes and testing products, many (if not most) of these need to be scrutinized from agronomic efficiency as well as environmental sustainability. In addition, products and processes require to be validated at a relevant scale. NOVAFERT acknowledges the necessity of familiarising end-users with alternative fertilising practices and products on a convincing scale to effectively accelerate the transition towards a circular economy in agriculture.

In this context, collaboration with stakeholders along the different value chains addressed by NOVAFERT is essential to identify and pinpoint that complex causes related to the acceptance of alternative fertilizers as well as to define and implement strategies to accelerate the transition to bio-based fertilisers by exchanging best practices and strengthening the farm advisory services to promote relevant knowledge exchange.

Based on these assumptions, NOVAFERT sets up a structured, comprehensive approach for stakeholder engagement that is complementary to all the Work Packages and their respective activities and it is aimed at building linkages between all the players involved in the agri-value chain.

2.2 Purpose of the report

The present document, D5.1 '*Mapping of stakeholders and development of stakeholder engagement strategy*' provides an overview of the preliminary steps to define a stakeholders mapping for the different value chain.

As part of the T5.1, this initial mapping of stakeholders is aimed at identifying the key stakeholders operating in the fertilisers value chain in order to understand how they can collaborate with the consortium and between them. This first exercise establishes the baseline for the continuous process over the project lifetime in terms of stakeholder mapping and engagement.

This current analysis is based on the existing NOVAFERT network and connections and it has 4 main objectives:

- To map stakeholders' network and to show the level of interaction (multi-level governance);
- To identify key stakeholders' challenges, interests and expectations from the project with different roles and different levels of impact (international, national, regional, local);
- To gather information on attitudes, opinions and behaviors of concerned stakeholders;
- To provide recommendations to favor the multi-actor dialogue and the multi-stakeholders co-creation and commitment process to favor the market uptake of alternative fertilisers.

2.3 Structure of the report

The report is structured in two main sections. The first one provides a description of who are the NOVAFERT stakeholders of main interest, the quadruple helix approach and the stakeholder mapping centered around factors related to interest and influence. The second section of the report focuses on the NOVAFERT global and local engagement strategy and how stakeholders will be involved at the different stages of the project, with a specific focus on the Lighthouse demo cases and the synergies with other actors operating in the field. Finally, the report will provide an outline of the next steps to be taken to ensure efficient engagement with stakeholders, along with the appropriate tools to monitor its effectiveness.

3. Who are the NOVAFERT stakeholders

The NOVAFERT stakeholders are organisations that have influence and/or interest, skills and knowledge in the field of fertilisers from bio-based resources and whom can be interested in evaluating and testing the solutions proposed by NOVAFERT for accelerating the adoption of alternative fertilisers.

As mentioned above, one of the purposes of the NOVAFERT project is to engage different types of stakeholders to create and foster interactions within the value chain to assure an appropriate transfer of knowledge with the aim to favor the efficient and safe use of fertilizing products . In the NOVAFERT project, stakeholders directly involved in the project or benefitting from its results are referred to as

Aware community, while those who lack awareness on alternative fertilisers, such as the general public, are identified as **Unaware community**.



Figure 2. NOVAFERT stakeholders. Aware and Unaware community

Aware Community includes actors directly and indirectly involved in the implementation of the project, affected by it or benefitting from its results.

Unaware Community only includes the general public.

Aware Community

Direct stakeholders

Project partners and third parties that are regularly in contact with NOVAFERT and that agreed to have a closer collaboration.

Indirect stakeholders

Actors that are involved to different extent in the field of bio-based fertilisers, such as farmers, fertilisers companies, policy makers and researchers.





Unaware Community

The community, mainly the general public, lacks knowledge and awareness on bio-based fertilisers produced by organic waste and thus the NOVAFERT project itself. The unaware community will be informed

on the NOVAFERT scope and how it is tackling the systemic transition to a wider use of alternative fertilisers by sharing knowledge and processes. Communication and dissemination activities (WP6) coordinated with activities planned for WP5 will ensure that the unaware community is merged with the aware community by the end of the project.

NOVAFERT recognizes that to efficiently catalyse and expedite the transition towards circular economy in agriculture, end-users and value chain need to become more familiar with alternative fertilizing products and processes. Therefore, the consortium in the application phase identified few strategic parties at European, national and regional level, whose engagement can ensure a first effective exchange of information and practical knowledge related to the use of alternative fertilizers.

The different types of ecosystem members are segmented as follows:

-  **farmers, farm associations, fertilisers producers, farmer advisors and trainers.** These groups will be strongly involved in the project through participatory workshops (WP5) to discuss effective strategies to overcome the barriers in the use of alternative fertilising products and the possibilities of actively collaborating with the NOVAFERT consortium. They will also play a relevant role through the network of Lighthouse demos (WP1 and WP4), described in paragraph 8.
-  **academia and researchers** will also provide a valuable inputs for research on nutrient recycling and the related technologies and products. Their engagement through dedicated events and initiatives will help to raise awareness on the benefits of alternative fertilisers and identify the existing gaps between research and practice.
-  **policy makers** whose engagement at local, regional, national and European level might contribute to the effective implementation of the Fertilising Products Regulation (FPR) based on science-based guidance. General and Regional Action Plans produced by NOVAFERT will define regulatory measures demonstrating the environmental, economic and social benefits of the alternative fertilising products in a circular economy context.
-  **general public** which will be informed about the benefits of alternative fertilisers through a social awareness campaign showcasing the efficiency and environmental safety of alternative fertilising products.

4. The quadruple helix approach

To support the transition to a wider use of alternative fertilisers, multi-stakeholder engagement and collaboration is essential. Therefore, bearing in mind the sectors identified before, the NOVAFERT stakeholder engagement strategy is based on the Quadruple helix approach which is a collaborative model of innovation recognizing four major actors in the innovation systems: science (academia), policy (government), industry (producers, private sector) and society (civil society organizations).

Consumers and end-users are usually perceived as passive actors, who consume the products, or the services made available by businesses. In the quadruple helix model, consumers and end-users play a central role being directly involved in the conception and the development of innovative solutions. This approach is likely to enhance the overall societal benefit at a reduced cost and increase the involvement of end-users, who will become an active part of the innovation system.



Figure 3. Quadruple helix

Being a CSA action, where a major role is also reserved to the interaction with the regions, the quadruple helix approach help identifying the relevant target groups at local level and according to the targeted secondary raw material.

In order to make the quadruple helix collaboration process effective and ensure that the key stakeholders of each of the interested sectors are duly engaged in the different phases of the project, it is important to define the relevant target groups at international, national, regional and local levels as well as the methods that will be used for involving each of the players in the project's activities.

International and national levels will play a more supportive role in setting up a common language and harmonise the existing knowledge, while the regional and local dimension will facilitate the understanding the challenges at local level and spread knowledge on the different solutions proposed by NOVAFERT.

Given these premises, one single approach is not the best choice for all stakeholders, therefore the stakeholder engagement plan will be mainly supported by the Dissemination and Communication Plan (D6.1), where all the communication and dissemination activities planned to favor the engagement of each key target group are duly described. In addition, a quadruple helix stakeholder's map for different regions will be then set up to identify interaction between different actors and the decision-making process among them.

To increase the success of the stakeholders' interaction and engagement it is of major importance to develop a stakeholder mapping, which will help define the key players within the quadruple helix matrix, their level of interaction, collaboration, and inter-dependency.

To facilitate the identification process, a stakeholder registry has been set up by BioAzul (Annex 1) to identify the different categories of stakeholders at country/regional level which are relevant for the implementation of, and participation to, the project activities.



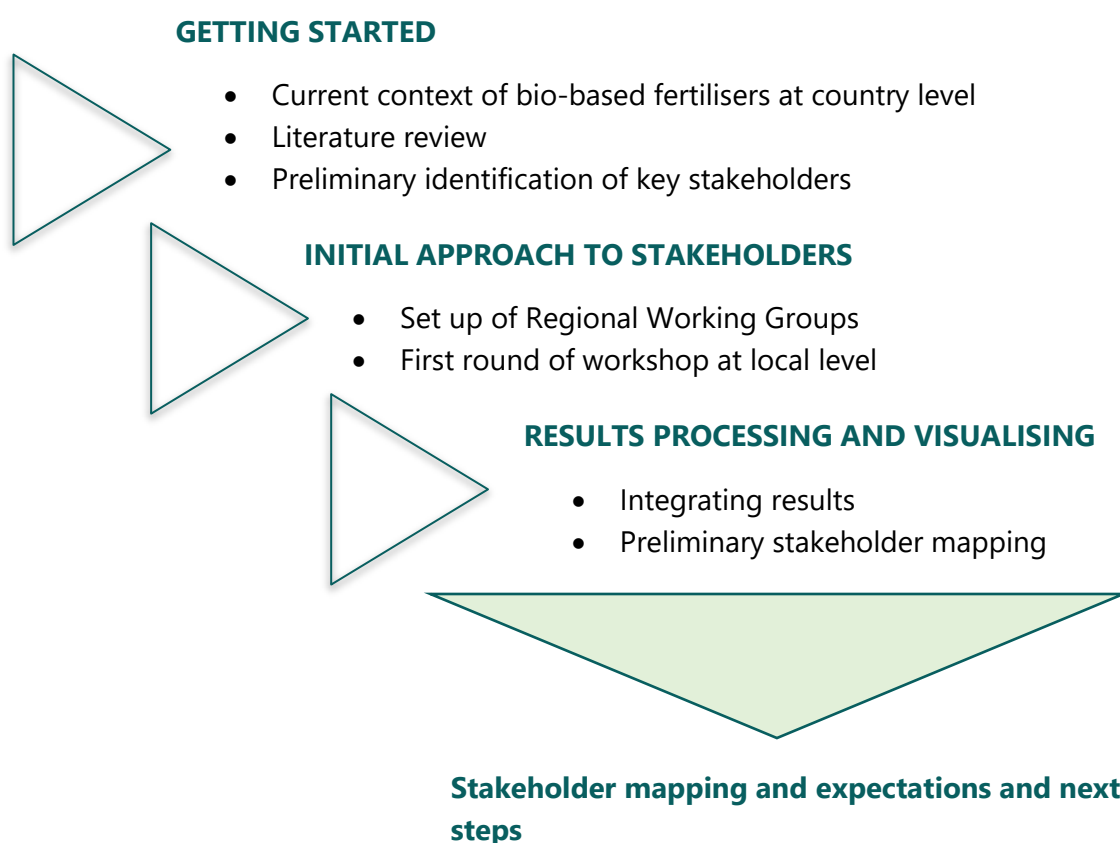
5. Stakeholder analysis and mapping

Given the structured methodology underlying NOVAFERT, the stakeholders analysis is of outmost importance to define the stakeholders' interest/influence, the level of influence they hold, the level of interest they have in the specific context, their capacity to act and change practices, the interdependencies among actors.

The stakeholder analysis was conducted on three different phases, detailed in the following paragraph, adopted by NOVAFERT that lead to a stakeholder mapping:

5.1 Research Phase

This section provides a description of how the current interactions from the NOVAFERT network are structured and how the results have been and will be achieved. This will serve as a starting point for further updates during the project.



5.1.1 Phase 1. Contextualisation

The first step of the stakeholder analysis was to identify the current context related to the alternative fertilisers at local level as well as the nutrient recovery and recycling community.

On one hand, a review of the existing literature of the regional available technologies for nutrients recovery and alternative fertilizing was done and collected in the database available on the NOVAFERT website ([Welcome to the NOVAFERT database | Novafert](#)) to frame the methodological initial approach to the stakeholder mapping. On the other hand, a first screening of the existing network at international, national, and local level was done to identify the major actors that can play a role in the NOVAFERT project and establish the next steps for contacting them.

This last exercise was applied first to the immediate sources already identified in partners' networks but also to nutrient EU-funded recycling-oriented projects, thematic networks, such as Nutriman, JRC's Strubias project and SAFEMANURE, and EU platforms and associations, such as the Biorefine Cluster Europe (BCE), the European Sustainable Phosphorus Platform (ESPP), the European Biogas Association (EBA), among others. Then, additional sources from regional Operational Groups (OGs) to regional researchers, public administration with specific competences in the sector were explored as well as the published best practices. This was a preliminary step to create an **initial core group** at local level, involving all the actors from the quadruple helix, which will be the basis for setting the Regional Working Groups.

5.1.2 Phase 2. The setting up of the Regional Working Groups and initial approach with stakeholders

After performing a screening of the relevant data and figures on fertilising products and mapping the EU-nutrient recycling innovations, an initial contact with the key stakeholders identified at country level started in order to further explain the scope of NOVAFERT and involve them actively in setting up the Regional Working Groups (RWG). These latter are meant to engage relevant stakeholders of the target regions in the implementation of alternative fertilisers solutions, serving as a mechanism for gathering knowledge in view of the creation of a Community of Practice and the implementation of the Region Specific Action Plans. The RWGs also rely on National Task Forces, already existing in several countries, which will help reach a wider network of stakeholders at national and regional levels interested in nutrient recovery and alternative fertilisers and operating in the target and outreach countries.

The initial approach with stakeholders to set up the RWGs was done through bilateral interviews to provide clear details on the role of Regional Working Groups and explain the need to obtain their feedback. Three participatory workshops per target country need to be organized locally and regionally by the Regional Working Groups to inform stakeholders about the project and activate their engagement. The outcomes of the RWG will contribute to defining the General Action Plans as well as the Regional Action Plans, to overcome barriers and to pave the way for the use of alternative fertilising products.

Therefore, all the involved countries, namely Belgium, Poland, Spain (Andalusia and Catalonia), Finland and Croatia organised dedicated activities to further explore the challenges experienced in the value chain at local level and define the most relevant topic to address.

Specifically, three qualitative aspects of the attributes of NOVAFERT stakeholder were/will be assessed:

- Interest or willingness to act;
- Most efficient interaction format to spread information and exchange knowledge;
- Degree of influence (towards other stakeholder groups).

These three aspects concern the ability of actors to bring about change, the most effective communication format to engage with them, and the power dynamics and governance aspects related to the decision-making process.

The investigation on stakeholders attitudes will be achieved by:

- gathering information from the stakeholders directly related to the project;
- gathering information from other stakeholders not directly related to the project but who may be interested in the outcomes of it (fertilisers, farmers, etc...) or those who can be reluctant in adopting new solution proposed by NOVAFERT for the acceptance (NGOs, press, associations, etc.);
- designing dedicated surveys to find out the opinions from the different actors of the quadruple helix

Details on the stakeholder engagement strategy per country are reported in par.7

5.1.3 Phase 3. Results processing and visualizing

Visual representations of exploitable networks are important to understand the interaction between stakeholders and their role in the project. Therefore, after collecting the above-mentioned information, a two-dimension stakeholder matrix will be created to get the stakeholder mapping, a visual representation of the stakeholder analysis organizing those contacts according to key criteria, such as influence and interest. Stakeholders will be plotted on whether they have high or low interest in and high or low influence on the project. Each of

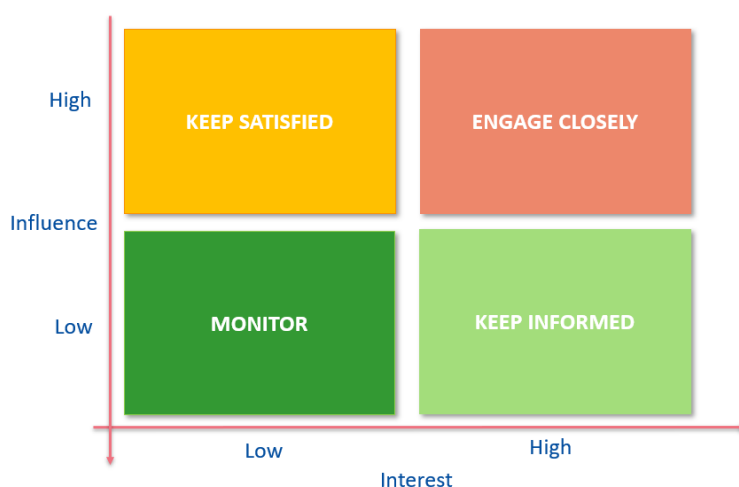


Figure 4. Stakeholder matrix

the boxes of the matrix below represents a level of engagement, ranging from the lowest level (monitor) through the middle levels (consult and involve) to the highest level (collaborate). The matrix is used to accurately identify stakeholders' interests and plan the subsequent participation and the direct collaboration with specific key stakeholder groups. This will be used as a basis to develop the next steps about the process of contacting stakeholders and how to engage them, as described in the following section.



6. Stakeholder engagement

The stakeholder engagement is a guiding process during which key actors active in a specific field are involved in a regular exchange and join their forces to overcome specific challenges addressed by a project. Therefore, the stakeholders' engagement is an inclusive discussion among all actors that can contribute directly or indirectly or have an interest in a given topic. To allow stakeholders to have an effective interaction with the NOVAFERT consortium a set of activities has been put in place and will be implemented according to stakeholders' expectations and needs.

All the activities planned to ensure the stakeholders' involvement are described in the paragraphs below and are consistent and complementary to the D6.1 '*Dissemination and Communication Plan*' and D6.5 '*Networking and synergies - interim version*'.



7. Engagement strategy

Novafert aims at orienting the production and the application of alternative fertilising products according to the best environmental performances and practices. Therefore, it focuses on boosting both the supply and the demand side of alternative fertilising products.

Adopting a multi-actor approach, NOVAFERT will actively engage key stakeholders to open a constructive dialogue aimed at reducing the knowledge gap and supporting the market introduction and uptake of alternative fertilisers. Therefore, NOVAFERT will create a network of experts, farmers, alternative fertilizers producers, water operators and engineers, consumers, authorities, researchers, agricultural advisory groups, and other actors, and facilitate the exchange of information and practical knowledge related to the use of alternative fertilizers.

However, this section offers an overview of the stakeholder engagement activities performed and planned by each NOVAFERT region within the framework of the Regional Working Groups. For sake of completeness, we would like to remind that 7 Regional Working Groups will be established in the participating regions of Europe to engage stakeholders from target countries and create a broader Community of Practice for the use of alternative fertilisers. Over the course of the project, 28 specialised workshops will be organized in the different involved regions (4 in each region). The aim is to involve key stakeholders and facilitate the transfer and exchange of knowledge related to the use of alternative fertilisers.

At this stage of the project, the consortium focused its activities on the understanding of the economic regional aspects, the research and innovation potential at local level and the concrete possibility of a market uptake of bio-based fertilisers depending on the involved region and the addressed waste stream. Therefore, the first interaction and involvement of regional stakeholders was aimed to identify the drivers and the barriers for the implementation of bio-based fertilisers and define the state of the art in each region through the SWOT analysis, which is reported in a dedicated deliverable D3.1 '*SWOT analysis for each of the NOVAFERT Regions*'.

The consortium focused its activities in creating connections with policy makers and farmers who are among the major players in the adoption of the novel fertilisers. This approach which privileges first the interaction with the 'aware community' (cfr. Chapter 3) on the state-of-the-art and the future perspective of alternative fertilisers, has also been considered preliminary to the second phase of the project, where NOVAFERT partners will start communicating widely at local level with consumer associations and NGOs to share with them the project results and the benefits of novel fertilisers. This approach will contribute to provide a consistent framework on the market uptake of novel fertilisers at local level and to better understand the consumers perception of it. In addition to that and with the aim of maximizing the impact of the engagement strategy for consumers, the planned Massive Online Open Course (MOOC) will include a chapter dedicated to consumers providing accessible knowledge to all those interested in learning more on how novel fertilisers might impact at economic and social level.

The following paragraphs summarise the main topics addressed, the type of stakeholders engaged, and the related engagement activities implemented at country level, with reference to the planned future activities.

A broader overview of the communication and dissemination activities, such as participatory workshops, webinars or working groups, planned transversally in the project is duly described in D6.1 'Dissemination and communication plan', which will ensure the project results are correctly spread to key stakeholders interested in exploiting them.

7.1 Spain

7.1.1 Andalusia

Last May, BioAzul organized the first NOVAFERT Regional Working Group in collaboration with another Horizon Europe project: P2Green, which is also devoted to the use of secondary raw materials to produce fertilisers in the Andalusian region. The event, which gathered 39 attendees, was aimed at collecting relevant information at regional level on the main challenges and needs that actors of the water management and regeneration sector and to the agronomic sector.



Figure 5. Pictures from the Regional Working Group in Andalusia

The outcomes of the meeting were the baseline to perform the SWOT (Strengths, Weaknesses, Opportunities and Threatens) analysis on the use of fertilisers produced using wastewater and sewage sludges as secondary raw materials and very specially on the use or reclaimed water as alternative fertiliser.

In order to enlarge the participation in the Regional Working Groups, attention was also deserved to the creation of synergies and potential joint activities between projects in which CETENMA, FER-PLAY coordinator and BIOAZUL, NOVAFERT partner, where concretely involved. Specifically, NOVAFERT built up collaborations with HOOP, VALUEWASTE, P2Green and BONEX.

The main idea was to share the results produced within each project and ensure cross-pollination of the upcoming events in Cartagena, Murcia, in which any of the projects could collaborate. Specifically, it was also discussed the participation of NOVAFERT in the General Assembly of FER-PLAY, which took place in October 2023 in Spain, with the organisation of an open day for other projects to be presented and perform any specific activities. For NOVAFERT, both BioAzul and UVIC took part to the meeting in Cartagena, where the Life Cycle Assessment (LCA) performed in the project was presented. There were three round tables: one for R&D

initiatives, another one for farmers already using alternative fertilisers in their fields and another one for distributors. First contacts were taken with a company called Naturbec, researchers and producers of alternative fertilisers and biostimulant, and soil amenders.

Additionally, EIT-FOOD also held a bilateral meeting with experts from the department of Irrigation of CEBAS-CSIC in Murcia (Spain), which has a strong focus on precision agriculture (irrigation scheduling, sensing technology, deficit irrigation and optimization on the use of alternative water sources, including reclaimed water, desalinated water. As Murcia is very advanced region in the use of reclaimed water in agriculture, the discussion focused on the use of reclaimed water in agriculture (not including information on the sewage sludges). The debate addressed all the aspects of the SWOT analysis. On the one hand, it was discussed the potential to reduce external inputs which could result in farmers savings up to 30% of N and P (depending on the source of the wastewater and type of treatment), as well as the need to educate farmers for the good management of the resources and applying existing good practices. On the other hand, it was highlighted that environmental benefits of reclaimed water as well as the restrictive European framework, might limit the capacity of growers to invest or manage the tertiary treatment.

EIT-FOOD also made preliminary steps in contacting stakeholders from other EU-funded projects, such as Neiker (Sea2Land) and set up links with other NOVAFERT partners to favor a fruitful knowledge exchange at research level. EIT-FOOD also conducted interviews with different stakeholders, also included in the Atlas of the Nutrient Recycling produced by the project. Some of these contacts will be invited to potentially join the Regional Working Groups and participate actively in the upcoming debates on nutrient recycling.

7.1.2 Catalonia

In this first year of the project, the BETA Center, facilitator of the Regional Working Group from Catalonia, has been established and held its inaugural meeting on May 30th, 2023. The working group comprises members from the quadruple helix, encompassing universities, representatives from the social sector (such as farmer associations and the board of sustainable livestock management in the region) as well as members from a private fertilizer industry, the regional government, consultancies specializing in fertilizer regulation, and private entrepreneurs in the areas of livestock and waste management.

The discussion was focused on the future steps and expectations of the regional group members, and shared preliminary information necessary for conducting a SWOT analysis.

For the next action to engage stakeholders at local level, the BETA Center will:

- organize 3 workshops focusing on efficient fertilizer use of BBFs, life cycle analyses, or the consequences of implementing the Catalan biogas and digestate plans in the future of agriculture.
- arrange field demonstrations showcasing the effectiveness of specific fertilizers and farming techniques in our selected lighthouse, which will be a fertilizer company with its own field trials.
- initiate other joint projects that involving farmers, cooperatives, and biogas plants from the region.

- set up a Catalan living lab dealing with efficient manure treatment to enhance nutrient recycling and soil health.
- develop the Digestate Catalan plan with the Regional Government.

7.2 Finland

LUKE - Natural Resources Institute Finland - organized his first online RWG meeting in Finland, which included experts from the following areas related to alternative fertilizers: legislation, production, agronomic efficiency, and safe use from the environmental point of view. Also, knowledge about farmers acceptance of alternative fertilizers was well presented in RWG.

Potential strengths, weaknesses, opportunities, and threats related to the alternative fertilizers were presented and vivid discussions took place around these issues. RWG members were actively involved in scoring each aspect of the SWOT matrix and defining the relevant topics related to alternative fertilisers to discuss in the next activities organized at country level. Meanwhile, LUKE finalized the collection of Living Labs and kept promoting the project and presenting results of agronomic efficiency of recycled fertilisers, with a focus on the Finnish region. In the next year they will start field trials in collaboration with the Nutribudget project.

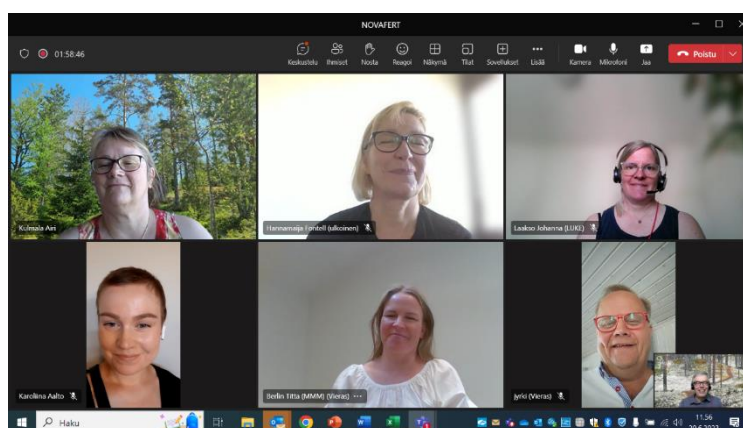


Figure 6. Picture from the Regional Working Group in Finland

LUKE is also planning a strategy to engage consumers at local level, which will start in autumn 2024 and will rely on dedicated articles in newspapers to increase awareness of consumers about recycled fertilizers. Along with that, LUKE will also organise a field day on 15th of August where relevant stakeholders are invited to join the event.

7.3 Poland

As part of activities aimed at stakeholders' engagement, two meetings of the Regional Working Group were organized, bringing together people based on the Quadruple Helix Model of Innovation, which recognizes four major actors in the innovation system: science, policy, industry, and society. The first Polish Regional Working Group (RWG) took place in July 2023 and occurred virtually.



Figure 7. Picture from the Regional Working Group in Poland

Examples of alternative fertiliser sources being investigated within the project were also presented. Various strengths, weaknesses, opportunities, and threats regarding the use of alternative fertilisers derived from animal manure, digestate, and sewage sludge were presented. A follow up action was taken in October, when the 2nd Regional Working Group was organized. In this meeting, experts mainly focused on the data collected in the 1st Regional Working Group in order to define the best strategy for the involvement of local stakeholders and identify the most common issues that are affecting / can affect the key actors of the biofertilizer value chain.

Moreover, information about the project was presented at scientific conferences, which further contributed to promoting the project. Thanks to these meetings and activities especially of the Regional Working Group, identified people from organizations and institutions such as:

- Polish Waterworks Chamber of Commerce - national public administration,
- GreenBack Ltd. - business – SME,
- Optimus Foundation – NGO,
- AGH University of Kraków – University,
- Research Centre,
- Farmers – private sector,
- Herby Water Treatment Plant – Lisów Wastewater Treatment Plant,

- Eko-tucz – a group bringing together farmers,
- Municipal Water and Sewage Company in Rzeszów,
- Ministry of Agriculture and Rural Development,
- Agricultural Advisory Center in Brwinów,
- Grupa Azoty.

In addition, the 1st online workshop titled “Fertilisers from Secondary Sources - Opportunities and Barriers” was organized in December 2023. The workshop, conducted in Polish, gathered 58 people who showed a significant interest on the topic who eagerly shared their experiences and emphasized the importance of the presented topics.

Moreover, the NOVAFERT project was presented at:

- the 11th National Conference of Young Scientists on Doctoral Achievements – Grand Poster Session (22-23 March, 2023; online): Paulina Marcinek presented a paper titled “Social indicators of the circular economy (CE) in the context of fertiliser management,”
- the 4th International Conference Strategies toward Green Deal Implementation: Water, Raw Materials & Energy (ICGreenDeal2023) (14-15 December, 2023; online): Paulina Marcinek presented a paper titled “NOVAFERT – SWOT analysis of usage waste-based fertilisers in Poland”,
- the World Conference on Soil, Water, Energy and Air (EUWCSWEA) (6 May, 2024; online): Paulina Marcinek presented a paper titled “Barriers and driving forces for the implementation of waste-based fertilisers in Poland”,
- the 5th Symposium on Circular Economy and Sustainability (17-19 June, 2024; Chania, Greece): Marzena Smol presented a paper titled “Policy tools supporting the development of the market for secondary raw materials and alternative fertilisers” which, thanks to the popularity of these conferences, will enable even greater engagement and identification of new stakeholders.

For the next step in engaging stakeholders, MEERI will:

- organise two more workshops,
- organise next RWG meetings,
- organise lighthouse demo farmer group visits.

All these activities aimed to promote the use of alternative fertilisers are also targeting consumers to demonstrate the benefits and favor a greater acceptance. At the time being, first interaction with consumers took place and it is expected to get a more concrete involvement of consumers at local level in the coming months.

7.4 Croatia

As facilitator of the Croatian Regional Working Group, IPS Konzalting also organized its first meeting involving mainly stakeholders coming from the business sector. Also, in this case the activities related to the SWOT analysis were presented. After the introduction, potential strengths, weaknesses, opportunities, and threats related to the alternative fertilizers were presented. Members of RWG discussed and scored the statements related to three second raw materials (animal manure, digestate, and bio-waste) in Continental Croatia.

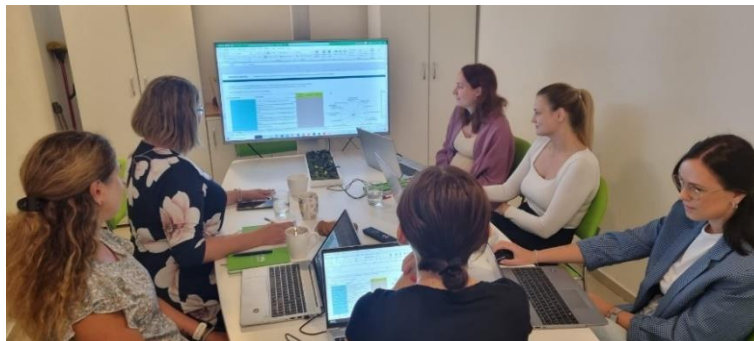


Figure 8. Picture from the Regional Working Group in Croatia

This was the preliminary step taken to organize the second meeting where other stakeholders will be involved (farmers, fertilizer producers). Simultaneously the matrix for the SWOT analysis was compiled to get major results to share and discuss in the following RWG meeting. By evaluating a SWOT analysis, stakeholders can share their experiences, discuss concerns, and develop solutions to tackle current challenges in adopting alternative fertilisers. IPS Konzalting will also disseminate knowledge about the benefits and methodologies of using alternative fertilisers through webinars and workshops. Experts will be able to offer their viewpoints, address any concerns and provide a comprehensive understanding of the proposed solutions. In addition to that, participation to conferences and promotion on digital platforms will contribute to increasing stakeholder engagement. These events will serve as platforms to share findings, network with potential stakeholders and create a supportive environment for the adoption of alternative fertilizers.

As part of its commitment to promoting peer-to-peer learning and practical demonstrations, IPS will arrange on-site visits to the demonstration lighthouses for groups of farmers. These visits will include practical demonstrations of the use and benefits of alternative fertilizer products. To ensure farmers receive ongoing support in adopting new practices, access to expert advice, detailed guides and follow-up sessions will be provided. These resources are designed to help farmers overcome any challenges they may face during the transition to using alternative fertilising products.

Additionally, IPS Konzalting as project partner focuses on researching the needs and preferences of end users in relation to the use of alternative fertilizers. To achieve this, they are gathering information on the needs of local consumers through a comprehensive survey. This survey includes profile questions as well as economic, technical, regulatory, and motivational segments. Accuracy is essential to understand the specific needs and preferences of the consumers. By conducting this survey, they will gather data on regional needs and be able to tailor initiatives accordingly. This customization will increase the relevance and awareness of alternative fertilizers.

7.5 Ireland

For its first workshop, Teagasc created a core group with the aim to target people working within the industry giving agronomic advice and selling fertiliser to farmers. The core group is organising monthly meetings to discuss relevant information and activities within this space which involves synergies with other funded projects.

The main purpose of this workshop was to introduce the Novafert project and explain the role Teagasc had within the project. The plan moving forward is to organise events by targeting a larger audience to discuss fertiliser use and go through findings from the PEST and SWOT analysis for the use of alternative sources of fertiliser.



Figure 9. Picture from the Regional Working Group in Ireland

From stakeholder involvement within the field Teagasc was able to gather relevant stakeholders to make a larger audience to disseminate information from the NOVAFERT project. Teagasc is responsible for leading WP1 which involved getting as much information as possible on nutrient recovery technologies and products throughout the country. The webinar offered the opportunity to receive feedback from the group on nutrient recovery technologies and products that they have come across or seen farmers using within their role. As next actions, Teagasc will continue to strongly engage stakeholders by finding out what they want and expect from the process. They will facilitate groups at a practical level by providing relevant information and also facilitate peer to peer learning.

This will continuously evaluate and receive feedback from the group to keep it interactive and interesting for stakeholders.

7.6 Belgium

In Flanders the main stakeholders to be targeted are from research institutes (including academia, and practice centers), farmers organizations, policy makers and companies looking at sustainable waste management.

The first Regional Working Group meeting organised in Belgium was held online. The NOVAFERT project was introduced, and the discussion focused on the future steps and expectations of the regional group members. The participants were also given basic information on the SWOT analysis method developed for the NOVAFERT project for them to identify the challenges and strength of employing biobased fertilizer in Flanders. Together with UGent facilitator, the members identified and analysed the SWOT which was used for D3.1.



Figure 10. Picture from the Regional Working Group in Belgium

Following this initial interaction with stakeholders, UGent and Impact organized the first physical meeting (on the future of sustainable farming in Flanders -June 20, 2023) in the Flanders, involving EU-funded projects such as Fertimanure in the frame of Nutricycle Vlaanderen. The meeting discussed the NOVAFERT project and its activities. Farmers, policymakers, and farming and environmental organisations all had a chance to share their perspectives on the subject. The participation list also includes potential members who wish to continue actively participating in NOVAFERT's RWG operations. During this event, they were able to provide relevant information at the regional level on the main challenges and needs they face.

Nutricycle Vlaanderen is a platform that already exists in Flanders as part of another Horizon Europe Project, Nutri2Cycle. As Nutri2Cycle comes to an end in September 2023, this platform will continue running in the framework of NOVAFERT with RWG activities to ensures a mutual exchange of knowledge and information and promotes joint action, cooperation on nutrient recycling between national/regional stakeholders.

To engage local stakeholders from different sectors, including consumers, UGent organized, in the framework of Nutricycle Vlaanderen, the workshop 'From lab to field: circular fertilisers in practice' together with ReNu2Cycle and Soilutions, where Flemish farmers, knowledge centres and companies discussed alternative fertilisers such as frass, struvite and ammonium salts, which can potentially replace traditional artificial fertilisers. The workshop, which took place on 26 April 2024 was open also to the general public to showcase the benefits of novel fertilisers.

Similarly, NOVAFERT will be represented in the Proefveldbezoek al Proefhoeve Bottelare on 26 June 2024, where UGent and IMPACT will present and discuss with the audience the benefits of novel alternative fertilisers and how to support the development of their sustainable use and management in Flanders.

With the aim to keep the attention on the topic at a high level and to reach stakeholders from the entire value chain, UGent and IMPACT are planning to:

- Organize three workshops, possibly one each on: 1) efficient use of BBF, 2) life cycle analysis, and 3) policy and regulatory barriers to BBF implementation in Flanders.

- With other initiatives and nutrient-related projects, create a farmer's platform to actively involve end users by translating project findings and incorporating their inputs and opinions.
- Organize field demos in our chosen lighthouse, demonstrating the usefulness of particular fertilizers and farming strategies.



8. Lighthouse demos and the Atlas of Living Labs on Nutrient Recycling

A relevant part of the NOVAFERT stakeholder engagement strategy is related to the Lighthouse demos and the Atlas of Living Labs, which will showcase the use of alternative fertilizing products put into practice on a farm scale.

NOVAFERT aims at orienting the production and the application of alternative fertilising products according to the best environmental performances and practices. Therefore, it will focus on boosting both the supply and the demand side of alternative fertilising products.

On the supply side, NOVAFERT will engage with current fertilizer suppliers to create the inventory update of available recycled products per region and type of waste to keep high the interest in using alternative fertilising products into the current product lines. This will present opportunities for the creation of new value chains, product differentiation and more sustainable fertiliser products to attract the current fertiliser suppliers to distribute these new alternative fertilising products. This engagement will be important to get the new fertilisers to the farmers as the current fertiliser suppliers have established distribution chains and routes to market.

On the demand side, the consortium will connect directly with farmers and other end-users of nutrients across Europe through a network of lighthouse demonstrations where front farmers will demonstrate other farmers how they incorporate the new alternative fertilising products into their farm system.

In order to do so, the NOVAFERT consortium mapped the EU-nutrient recycling open innovation systems currently running and defined the criteria for selecting nutrient-oriented living labs that have been included in the Atlas (D1.3). This gathers information on the front farmers, companies or research institutes identified in T1.4 that are showcasing the good environmental performance and practices of the recycled products. Those ones will serve as basis to set up a methodology for the establishment of lighthouse facilities. The lighthouse demonstration farmers will host other groups of farmers (around 5 group of farmers per lighthouse demo) to see the practical side of fertilizing products use, including cost, application strategies and mineral fertiliser replacement values with the support of the project partners. The lighthouse demonstrations and the support for the front farmers will substantially contribute to the adoption of bio-based fertilisers to a greater extent across Europe (inspiring 30-50 new farmers) and that the use of novel fertilizing products once adopted by farmers will continue after the project completes. The lighthouse demonstrations will be strongly linked to the dissemination activities of WP6.

By informing potential stakeholders on the supply and demand side of alternative fertilizing products and the results of existing work, NOVAFERT will show the agronomic and environmental performance of new alternative fertilising products options. The dissemination of the project results through the lighthouse demonstrations will pave the way for their




exploitation (WP4) and will facilitate the marketability of the alternative fertilising products originating from secondary raw materials by bringing evidence-based scientific support.



9. Synergies

Since its beginning, NOVAFERT envisages the opportunity to create and establish synergies with existing nutrient-related projects and international and national platform / initiatives in order to expand its community.

These collaborations will be based on reciprocal benefits in terms of:

-  Exchanging knowledge among projects
-  Maximising the projects impacts
-  Avoiding overlapping

Being a Coordination and Support Action (CSA), NOVAFERT will also rely on an existing strong interlinkage with running initiatives and projects. The NOVAFERT consortium already enjoys a deep-rooted involvement in relevant EU projects, such as Fertimanure, Nutri2Cycle, Nutriman, Lex4Bio, Suwanu Europe, ReNu2Farm, among others, whose data and results will be relevant for the development of project activities foreseen in WP1 '*Mapping nutrient recycling technologies and products*'. In addition, the consortium will capitalize on its BCE membership, the linkage with European associations, such as ESPP, EBA, EIP-AGRI as well regional, national and European governments and public bodies.

This will favor the identification of key stakeholders that can benefit from Novafert and will contribute to the implementation of a multi-actor stakeholder approach. All the details on the different collaborations set up by the project partners also at country level are duly described in the D6.5 '*Networking and synergies - interim version*'.

10 Next steps

At M15, the key actors to be involved in NOVAFERT have already been named and contacted as well as other institutions, platforms and projects that should be involved in the future both for their potential interest and their potential influence on the market uptake of alternative fertilisers.

To further develop trust in stakeholders, they will be involved at different stages of the project and constantly informed about the relevant project updates that follow in their field of expertise and that can be of their interest. In this sense, the dissemination and communication plan as well as the exploitation plan will act as complementary strategies to ensure a bi-directional communication process through the implementation of successful ways of communication.




Different ways of interaction and involvement are required in order to achieve sound knowledge exchange. Stakeholders will be actively involved in face-to-face actions such as workshops, bilateral meetings, focus groups as a very effective way to be engaged them going beyond mere request for participation to questionnaires or interviews.



11 Monitoring tool

To ensure the effectiveness of the stakeholder engagement plan at global and local level, a monitoring process of stakeholder engagement will be implemented and will include regularly checking in (every 9 months) on the achieved actions to make adjustments when needed. This is an ongoing process that will be performed throughout the project to ensure that needs and expectations are being met.

To monitor stakeholder engagement, these steps will be implemented:

-  Collect and analyze data on the level of engagement and participation of each stakeholder group gathered through surveys, interviews, meetings;
-  Identify any areas where stakeholder engagement could be improved or where stakeholder needs are not being met;
-  Make changes to the stakeholder engagement plan as needed to address any identified areas for improvement (i.e. low interest, i.e. low capacity to engage).

This will help the consortium to focus on those key stakeholders who are less involved than others and favor their involvement, while nurturing the interest and commitment of those stakeholders who are already very active in the market uptake of bio-based fertilisers.

D5.1 – Networking and synergies – interim version

Annex 1. Template for stakeholder monitoring

[illegible]