Connor Morrin:
The thin layer of soil that covers the surface of our planet is fundamental to life on Earth. 95% of the food we eat depends on soil health, yet nearly a third of agricultural land worldwide is already degraded. As the pressure to produce more food without encroaching on our remaining natural landscape intensifies, restoring soil health and its natural ability to remove CO2 has never been more urgent. Despite its critical importance, we're only now beginning to fully understand the vital role soil plays in creating a sustainable future for farming. Helping to address this knowledge gap is a brand new five-year project designed to tackle the challenging climate situation affecting soils, particularly in the rapidly warming agricultural areas of the Mediterranean region.

Sonia Pietosi:
Lila4SOILS stands for Living Labs for Soil Health. It's a project funded by Horizon Europe and covers the entire Mediterranean region, and that is why I'm sitting in Madrid right now.

Connor Morrin:
Sonia Pietosi from EIT Food South is one of the coordinators of the Lila4SOILS project.

Sonia Pietosi:
We are really trying to foster the use of carbon farming practices through this participatory research and innovation methodology, which are the Living Labs, very much focused on the Mediterranean region. So we work in six countries, Portugal, Spain, South of France, Italy, Greece and Israel. Being all Mediterranean, they share similar climates and similar problems in agriculture. So this will allow us also to compare what you're doing and being able to learn and share within the region, but also then potentially more broadly within Europe.

Connor Morrin:
Living Labs are real-world environments where research, experimentation and innovation take place through a collaborative, user-centered approach. They aim to address societal challenges and develop practical, actionable solutions through the implementation of carbon farming practices to promote climate adaptation and mitigation.

Sonia Pietosi:
We want to bring the entire ecosystem together. So what a Living Lab does is really to bring together all the concerned parties, starting from farmers, researchers, industry and the public sector as well, so private and public sector together, so that innovation is as relevant as possible and as effective as possible. So you really

bring different knowledge sets at the table. And particularly, I think it's very important when you are innovating and researching to bring the user at the center. At the end of the day, you want to create a solution for a problem, not just a nice new product or a nice innovation. And in our case, of course, we are dealing with agriculture, so the user will be the farmer. The farmer there is much closer to the soil, is much closer to the growing process of a crop, of a plant. and they will know better what kind of problems they will face and they are facing on their farms. So everything we do within a living lab has to be really informed by the user, informed by the farmer. They will be the one guiding what we are doing and at the same time, of course, they need support. Each one of these parties are experts in their own fields, so each one will add something and they will be supported by the others. So in particular, I'm thinking about the researchers that, of course, are very much evidence based in what they do. So they can tell a farmer what works and what doesn't. But then the additional part of a living lab is that we're going to test this research, this evidence in real life. So at the end of the day, a farm is a very complex mechanism, not only from an environmental perspective and how a plant grows, but also from a business perspective. So what it works and what it doesn't work also from a business point of view. And all of this is also to try to innovate or, as someone says, going back to regenerative agriculture is almost going back to the origins, how we used to do it before. But nowadays, we are transforming the system backwards or forwards, we will see. So we'll be able to transform the system at a farm level with the idea to bring it at a regional level, be it a region in a specific one of our countries and then the entire Mediterranean region, with the idea of scale. So scale is also very important if we want to reach broader goals at European level, but at the end of the day, we're one planet. so hopefully broader than that as well. So this innovation needs to be tested at the farm level in a real world setting and also we have a lot of activities around demonstration and sharing among peers so that exactly then they could be scaled. Each farm, it's a little bit of a world in itself. My background is not agriculture and I'm quickly learning the variety that there is within agriculture. So there is a lot of trial and error and adaptation in each one of the contexts. And that's what a mechanism like a Living Lab, being alive, you know, it's a constant iteration process of trial and error, of learning and applying again and improving. This is exactly, I think, one of the strengths that a Living Lab has. considering different points of view for constant learning. So on the one hand, it's very abstract. And some people can understand, OK, yes, you bring different stakeholders to the table, different ideas, that you try to engineer this mechanism of listening and receiving. It's a two-ways communication, trying really to have all the voices heard around the table. And so when explaining it in a very higher level, an abstract level, for some people, it's enough to understand, but for some others is very abstract. Actually, I think there are more misunderstandings with people that are involved in the sector. They often visualize a living lab as one specific field, but the living lab is really the system that is above that and exactly this innovation and having lots of ideas at the table.

However, I always say we go very, very quickly from this ecosystem of many parties talking together to actually a very micro level of analysing a very specific problem. So out of the ecosystem, you really need to have all the expertise that you need to be able to solve a very specific problem. That can be a bacteria, that can be around water, that can be around carbon or nitrates or any specific part. you have a very different specialised skill set that you need to mobilise. So this is why it's important to have fairly large ecosystems around the Living Labs, so that when a farmer comes to us with a specific problem, we are ready to mobilise the right experts around that problem. Biodiversity, for instance. Sometimes we hear about a quadruple helix of innovation. In our case, Illilla for Soils, we went to five types of stakeholders, a quintuple helix. exactly adding this environmental perspective to research, civil society, public sector and of course the farmer and the industry. So with carbon farming we refer to a range of farm management practices that lead to carbon sequestration and storage, including the management of both land and livestock. We have in our program for instance agroforestry, we have management of soil organic carbon and nutrients, but also we will be dealing with livestock and manure management as well. So we go from livestock and land management and all ports of carbons in soil, materials and vegetation. So it's everything around the carbon cycle in soil. At the same time, carbon farming also refers to the business models that aim to upscale the climate mitigation through carbon sequestration in soil. So it is also a very important part of Villas for Soils, remembering that farmers are not experimental sites, they are businesses. So we'll be looking into the environmental dimension, but also into the business dimension with them. So are these practices viable? Do they make sense from a business perspective? So carbon farming encompasses all of that. So the environmental side, how carbon is sequestered in soil, as well as the business side. So convincing someone to do something is always difficult. And everybody says that in agriculture it's particularly difficult. Living Lab is just one of the many participatory methods and now you will be hearing about multi-stakeholder networks or multi-actor approaches a bit everywhere. I think there is a recognition that we cannot work in silos anymore. And so there is always the need to bring different skill sets at the table. Now everybody became so specialised, right? So we necessarily need to have multiple stakeholders at the table. I think one of the challenges, now specifically with Living Labs, is to kind of set the boundaries. Now, our living labs in Lilas for Soils are very much focused on carbon farming. But carbon farming is just one of the practices. Carbon is one of the issues. Then we might have many other aspects that influence soil health. And indeed, Lilas for Soils has five living labs under it. And we are among the first 25 funded by Mission Soil, the European Mission Soil, that aims to fund up to 100. And so this is just really the beginning and then it's very difficult sometimes to understand where we start and end and where our so-called sister projects start and end and how we can touch base because they design their boundaries in a different way. So there are a lot of touch points but not probably enough for complete comparison and to always share the same lessons. So I think this is one of the challenges, really, because

today we're talking carbon farming. There are living labs about agroforestry, but also there are living labs in health or, you know, energy, urban mobility. There are many other sectors that are using the same collaborative approach. So I think this can be applied to every field or every sector. But it's just the part, it's just for me to say really participatory approaches. And that's that's crucial nowadays. Lead Labs for Soils starts with five living labs, 24 partners in six countries. But the idea is really to create ecosystems that are as large as possible so that then we can mobilize the right knowledge for a specific problem. So in the spirit of increasing the pool of experts, including the farmers that we have at the table, we are now recruiting 50 farmers to bring within the Living Labs. So we are opening this call on the 10th of March and it will be open until the 16th of May. And we are looking for farmers that are really interested, that are already doing or are interested in starting doing carbon farming practices on their fields. We're asking them to avail one to five actors so it doesn't have to be the entire farm because we recognize that there are some risks involved especially in the transition and there will be quite a bit of experimentation trying to find the right practices for the farm or the right combination of practices on the farm. What farmers will have is technical support. So in each one of the living labs we have organizations that are there to provide technical support to farmers or agronomists and specialized organizations as well as researchers. They will also be part of a network. Just recently we launched some of our living labs and what we heard from farmers is that they feel quite isolated often because they feel a bit of a pioneers in these practices so it's great to see like-minded farmers and to be able to share experiences and also they will have the opportunity to share the knowledge with other farmers and more broadly with all the stakeholders involved and at the end of this process we'll also aim to influence policy as well. So we also have in the living lab in leadership of soils, some partners that have that kind of policy reach. So they will be really part of this entire ecosystem. So you're looking for farmers that not only want to try the carbon farming practices, but they really have this experimental mindset and want to come to the entire journey with us. We're talking three to four year commitment. And in turn, we also give them a little compensation for it. We are talking about 5,000 euros per year to work with us and participate to workshop, participate to some of these knowledge sharing sessions as well. And of course, data sharing is a big part of all of this to try to be as evidence based as possible, given all the many variables that we have in a real world setting. I personally think that it's undeniable. The size of the problem nowadays is undeniable. With climate change and with all the natural disasters that we are seeing around us, the more and more frequent, right? And so we all need to participate in trying to transform, to change the system. I really feel the urgency of this transformation because we keep hearing that 2030, 2050 are around the corner and our targets, not even the targets are ambitious enough, like let alone the action to achieve these targets. So I can only encourage everybody to be part of the discussion and to really try to have a voice and then I'll take it often on me as coordinator of a project like this one that involves

living lab to make sure that all the voices are equally heard. So I think on both sides we have our work to do experts to really voice their concerns, farmers to tell us what's going on in the field and what are their needs to be able to transform what they're doing in a sustainable way and non-experts like myself to be able to coordinate all the different areas of expertise that are needed in a way that there is effective collaboration that really helps achieving the right solutions and scale them up in a time frame that is still useful for all of us to keep life on Earth if we want to be very ambitious in a very long term.