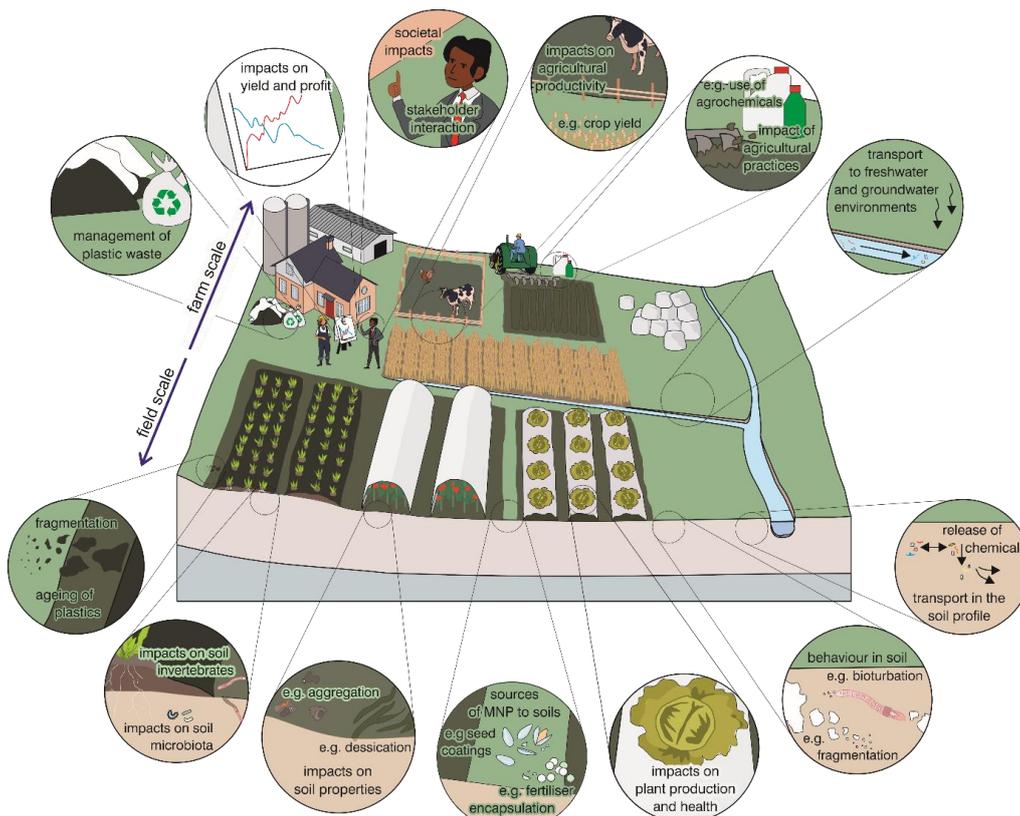


Plastic in Agricultural Production: Impacts, Lifecycles and LONG-term Sustainability

Plastics are becoming increasingly important in European agricultural production. There is a concern that this results in the release of micro and nanoplastics to soil. The long-term impacts of these materials on soil ecosystem and agricultural sustainability is unknown. Knowledge and understanding of mechanisms and processes controlling releases, behaviour and impacts of plastics, as well as their chemical additives, on soil ecosystem and its productivity is mostly missing. A consortium of 20 leading European research institutes coordinated by the Norwegian Institute for Water Research is competing for a European research grant to address these gaps and deliver knowledge useful for the development and implementation of European agricultural and environmental policy.



PAPILLONS' overarching goal is to elucidate sustainability of plastic use in European agriculture in relation to releases and impacts of micro- and nanoplastics (MNPs) and their chemical additives in soil.

Through novel applications of state-of-the-art analytical chemistry, materials science, computer modelling and nanofabrication technologies, we will elucidate sources, behaviour and impacts of particles in both micro- and nano-scales. We will also deploy a multi-actor approach whereby scientists in the areas of agronomy, environmental science, ecology, chemistry, engineering, economics and social sciences meet a diverse group of actors in the farming,

industry, services and policy sectors to convey and co-generate relevant knowledge for the future protection of farming ecosystems from the adverse impacts of MNPs. We will take advantage of the cross-disciplinary synergies by conducting surveys and experimental work at European level to elucidate releases on MNPs from the use of agricultural plastic, their accumulation in agricultural soils and their transport to other part of the ecosystem. We will also study the potential long-term impacts of MNP and their chemical additives on soil ecosystem. We will also assess the potential impacts on soil productivity, crop quality, agricultural yield and, ultimately, social and economic sustainability of agricultural plastics.

PAPILLONS aims at producing knowledge to inform the innovation agendas of farmers, industry and policy in Europe and beyond. We aim to support and positively impact the European chemical regulation (with regards to the use of plastics in agriculture) and the reform of the European Common Agricultural Policy.

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