



Horizon Testimonial

About Rustica

The overall goal of the [Horizon 2020 project RUSTICA](#) is to foster the technical validation, demonstration and implementation of circular bio-based nutrient valorisation chains, focusing on waste from the fruit and vegetable agro-food system. The project kicked off in 2021 and will run until 2024. It will use a strong multi-actor approach, combining the knowledge and experience from many different relevant stakeholder groups to co-create both socio-economic and technological knowledge in 4 case study regions in Europe and one in Colombia.

For the technical development 5 technologies (Pyrolysis, insect cultivation, Carboxylic Acid Platform, Microbial protein production and electro dialysis) are used to produce 5 building blocks out of organic agricultural waste streams (Biochar, Insect biomass & chitin, insect frass, Microbial protein and nutrient concentration). These building blocks will be mixed with compost in different ratios, depending on the needs of the soil, to develop an ecological, adaptable and economic fertilizer.

Open innovation approach

At the core of this project is an open innovation approach with iterative learning loops to ensure the implementation of input from a diverse set of stakeholders, optimize learning and maximize chances of practical implementation. Our open innovation approach is by definition multi-actor. It does not only aim at co-developing feasible solutions for nutrient recovery from fruit and vegetable waste streams through strong interaction between the diverse set of project partners (e.g., research organizations, technology providers, processors, industrial actors and farmer organizations), but collaboration will also be set up with additional actors including policy makers, forestry and nature agencies. This will be done by establishing 5 regional multi-actor networks of which four in Europe and one in South America.

Project partners

To make this project a success, 16 partners from all over Europe, have joined the RUSTICA consortium. The consortium is composed out of technology providers, (agricultural) research institutions, economic and legal experts. The diversity within the consortium allows a wide view on all the challenges faced. The Flanders-based **company DRANCO** is one of the project partners and acts as technical project manager, taking responsibility for the technical aspects of the project. DRANCO participates in this project to further develop its own technologies, to network and to help make the transition to a more circular (bio-)based economy. Working on the project is more diverse than we could image and offers us a mutual-learning experience.

The broader picture

The EU depends strongly on external sources for the supply of key fertilizers used in agriculture. Resource depletion and an increasing global demand for mineral fertilizers may, in the long term, lead to price tensions with an impact on food security. Mineral-based fertilization also poses significant environmental problems, linked e.g., to the amounts of fossil energy needed to produce and transport these fertilizers. Agri-food specialization has led to regional imbalances: whilst in some regions a nutrient overabundance is causing severe environmental impacts (e.g. nitrate pollution), other are experiencing nutrient deficits. These contrasting effects may also be observed between locations within the same region.

Several technologies are being developed to recover and re-use nutrients from organic by-products, but many are insufficiently matured and the characteristics of end-products do not always match end-user preferences. It is expected that the EU 'circular economy package' will boost the emergence and commercialization of such new fertilizers, hence it is important to understand their agronomic and environmental performance to establish adequate policies, guidelines and application rules.